

1876



PIANOFORTES



STEINWAY & SONS

New York

STEINWAY & SONS,

Manufacturers of

GRAND, SQUARE AND UPRIGHT



Warerooms,

STEINWAY HALL,

Nos. 107, 109 & 111 EAST FOURTEENTH STREET,

BETWEEN UNION SQUARE AND IRVING PLACE,

NEW YORK.

Factory,

FOURTH AVENUE, FROM FIFTY-SECOND TO FIFTY-THIRD STREET,

NEW YORK.

SAW MILL, IRON FOUNDRY, AND METAL WORKS, ASTORIA, L. I.,

OPPOSITE ONE HUNDRED AND TWENTIETH STREET, NEW YORK.

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INTRODUCTION.

THE Centennial Exhibition of 1876 marks a grand and ever to be remembered epoch in the history of America.

Inaugurated with the view of celebrating in a fitting manner the one hundredth year of our existence as a Nation, under permanent Republican institutions, it affords us the opportunity of displaying to the world at large the progress we have made in all those arts, sciences and manufacturing industries which appertain to advanced civilization, in friendly competition with the older nations of the world whom we have invited to join us in this our national celebration.

That the Centennial Exhibition will stimulate and develop every department of manufacturing industry admits neither of doubt nor question; it will, however, do more, for it will furnish us a comparative test by which we may judge of our own progress in comparison with that of other nations, inciting us to renewed efforts in the future to achieve the palm of excellence in all those industries to which we give our attention, our inventive skill, and our enterprise and in which we invest our capital.

In participating in the Centennial Exhibition it cannot be deemed inappropriate if we give a summary of the active share which the firm of STEINWAY & SONS has taken in that special branch of art manufacturing industry which appeals directly to all the gentler influences, the kindlier feelings and associations of our nature, inseparably connected with "Home!"—in which magic circle it is most honored, and where its humanizing and soothing effects are best felt, understood and appreciated—need we say the "Pianoforte!"

For the elevation and development of that class of music, ever so genially acceptable and intrinsically valuable in the home circle, America is indebted to Europe for the medium in the form of the "Pianoforte," to which so great an ennobling, educating and progressively fascinating mission was entrusted.

The general prosperity of the citizens of America, the rapid growth of their taste for, and appreciation of the good and beautiful in art, favored its introduction into the Western Hemisphere at a comparatively early date. But in a short space of time the trying climate of North America exhibited its influence upon the imported European piano. The vast continent of North America, in its interior, suffers from the destructive effects of the ever recurring dry land winds, whilst the populous sea-coast districts are in constant receipt of the moist sea-breeze. Europe—where the climate is comparatively uniform and which is not liable to such abrupt and violent changes of temperature—had constructed instruments in accordance with its own climate, but which were not calculated to withstand that of America, and therefore, as a natural consequence, soon became useless in this country. Again, the great distance between the settlements, scattered over so vast an extent of territory, rendered it not only costly, but next to impossible to effect the repairs, which were essential every now and then, in order to keep the instrument in anything approaching to playable condition. In the interior of the States, this difficulty was increased by the lack of workmen who sufficiently understood the art of piano making so as to repair and tune instruments. As an inevitable consequence, pianos became articles of luxury, accessible only to the wealthy.

The best European instruments only found a ready market in this country, and the pianos of a few celebrated firms of London and Paris, to whom the art of piano making is so deeply indebted, were regarded as the standard instruments in the Western world until the third decade of the present century. But even such instruments as named were imported only in small numbers, gradually decreasing, for the cogent reasons stated, until finally the importation ceased. At this period the manufacturing of pianos of a

more substantial character commenced in America, and the inventive genius of the country was applied in the effort to achieve durability as well as perfection in tone; those efforts being continuous from year to year, until the successful results, as exhibited in the present instruments of the celebrated American manufacturers, were attained.

Until the commencement of the present century, the attempts at pianoforte making in the United States were few, and the results achieved without any practical significance. From the year 1825 the first steps of improvement in American piano making may be traced. In that year the first attempts were made to give the body of the instrument more durability and increased power of resistance against the pull of the strings, by the application of a full frame of cast iron* in place of wood. These experiments were naturally first tried on square pianos, as those instruments were the most used, and almost exclusively manufactured in America.

In a brief synopsis like this, the object of which is to describe the enormous dimensions to which the manufacture of pianos in the United States has arrived, only those inventions can be mentioned which, by their practical value, have aided materially in the development of this branch of art industry. It must be mentioned, however, that a careful search of the records of the United States Patent Office has revealed the fact of a large number of most interesting inventions to have been filed, which, though impracticable in themselves, go to prove, that for years there has existed a constant and earnest endeavor to improve the manufacture of pianofortes in America.

In the year 1825 Alpheus Babcock of Philadelphia, obtained a patent for the construction of a cast-iron ring, somewhat resembling the shape of a harp, in a square piano, for the purpose of increasing its power of resistance to the pull of the strings. By this invention, the principle was first practically introduced of casting the iron hitch-pin plate, together with that portion which supported the wrest-plank, *in one piece*.

In 1833 Conrad Meyer of Philadelphia, exhibited at the fair of the Franklin Institute in that city a square piano, which was constructed with a full cast-iron frame, substantially the same as used at the present time.

The introduction of this full iron frame was aided to a

* The attempt to employ iron for the purpose of giving more power of resistance to the pull of the strings was made about five years earlier in England. In 1820 James Thom and William Allen obtained a patent (No. 4431) for an improvement in pianofortes: "To use iron plates, supported by a number of bars (metal tubes), against the pull of the strings." Stodard, of London, was the first to use this patented construction in one of his grand pianos.

great extent by the excellence of the quality of American iron and the perfection which the art of casting had already attained at that period. The fact was indisputable, that the pianos thus made stood better in tune than those previously constructed; but one great defect was their thin and disagreeably nasal character of tone. For these salient reasons, the new invention soon had quite as many opponents as admirers, so that, until the year 1855, a large majority of the American manufacturers made no attempt to use it. Its opponents were especially numerous in New York, where prior to this year, as can be authentically proved, not one of the prominent makers used the full iron frame in the construction of their instruments. All the pianofortes manufactured in Boston at that time had a full cast-iron frame, the wrest-plank bridge being a portion of the same. Across the acute edge of this iron bridge the generally exceedingly thin strings were laid, and the action used in these pianos was, without exception, what is styled "the English action." In New York, on the contrary, the instruments made were provided with a small cast-iron hitch-pin plate and the "French action," and they differed from the Boston pianos in possessing a much fuller and more powerful, though at the same time less "singing" quality of tone.

The New York piano makers achieved in their instruments the capacity of standing in tune more permanently than had been previously accomplished, by greater solidity of construction and a heavy bracing of the case, and more particularly by the use of a solid bottom or bed (of a thickness of fully five inches), which, however, to some extent marred the elegant appearance of the instrument. By degrees a new difficulty manifested itself in the instruments thus made, for, as their compass gradually extended and finally reached seven, or seven and one-third octaves, it was found impossible to obtain the necessary power of resistance against "the pull" of the strings, even by the most solid construction of the case, when wood alone was the material used.

It therefore became necessary to apply the iron frame, but in such a manner as to avoid the deleterious influence previously ascribed to it as so objectionable, in order that the piano might lose none of its fullness and power of tone.

This successful result was first achieved by the firm of STEINWAY & SONS of New York, who, in 1855, constructed a piano with a solid front bar and full iron frame, the latter covering the wrest-plank, the wrest-plank bridge, however, being made of wood. The brace, which in the treble connected the "hitch-pin plate" with the wrest-plank plate,

was slightly elevated above the strings, and ran in a different direction to the latter, namely, exactly to the angle at which the wrest-plank had to sustain the pull of the strings. The bridges of the sounding-board were grouped in such a manner, that they were moved considerably nearer to the middle of the latter, and at the same time the lineal length of these bridges was increased by placing the bass strings of the instrument over the others—or overstringing them—over three nearly parallel bridges, thus increasing the length of the latter over the sounding-board, viz.: from forty to sixty-eight inches, their position being removed from the iron-covered edges of the case, nearer to the centre of the sounding-board. The results achieved by this novel construction were in every way most successful. The first instrument made on this plan received, by a *unanimous* verdict of the jury, the first prize, a gold medal, at the exhibition of the American Institute, at the Crystal Palace in New York in 1855. This new method of construction very soon became the standard for all manufacturers in that and other cities, and, as far as can be ascertained, all square pianos manufactured in the United States at the present time are, to a greater or less extent, constructed in accordance with this system.

In 1859 an improvement of great importance was made in square pianos by STEINWAY & SONS, and patented by them. This consisted of an iron frame with a downward projection, which ran parallel with the wrest-plank bridge, abutting against the same, thus giving it an extraordinary degree of firmness and solidity. Into this projection the “agraffes” were screwed—this being the first successful application of the agraffes to the treble of a square piano (see description of this patent, page 7.) This application of the agraffes only became practically possible after the invention by STEINWAY of a drilling machine peculiarly constructed to achieve the object in view. This new agraffe arrangement was used in all grand and the highest priced square pianos manufactured by STEINWAY & SONS, and subsequently in *all* their square pianos.

The grand piano, beyond a doubt the most perfect and magnificent of the three ordinary species of pianofortes, had, up to a comparatively recent period, received but little attention from either the manufacturers or public of the United States—in fact, not until towards the year 1840. The sale of a grand piano was an event of rare occurrence, and European pianists visiting the United States almost invariably brought their concert instruments with them. The demand for grand pianos was so limited indeed, that STEINWAY & SONS, prior to the year 1856, did not deem it

advisable to give a new impulse to this class of instruments, by commencing its manufacture. The first grand pianos made by them were constructed with a straight-stringed scale and full iron frame, a treble piece of brass or iron, and with agraffes in the middle tones and the bass, screwed in the wood. These grand pianos soon became extensively popular, and were so favorably regarded by professional artists and the public, that they were at once brought into extensive use in the concert room, and large numbers of them were made and sold.

The firm obtained, subsequently, several patents for grand piano actions and improvements; but the most important improvement of all, in the construction of these instruments, was patented by STEINWAY & SONS on the 20th of December, 1859. This improvement consisted of the introduction of a complete cast-iron frame, the projection for the agraffes *lapping over* and *abutting against* the wrest-plank, together with an entirely new arrangement of the strings and braces* of this iron frame, by which the most important and advantageous results were achieved. The strings were arranged in such a position, that in the treble register their direction remained parallel with the blow of the hammers, whilst from the centre of the scale the unisons of the strings were gradually spread from *right to left*, in the form of a fan, along the bridge of the sounding-board, the covered strings of the lower octaves being laid a little higher and crossing the other ones (in the same manner as the other strings), and spread from *left to right* on a lengthened sound-board bass bridge, which ran in a parallel direction to the first bridge. By this arrangement several important advantages were obtained. By the longer bridges of the sounding-board a greater portion of its surface was covered—the space between the unisons of the strings was increased, by which means the sound was more powerfully developed from the sounding-board—the bridges, being moved from the iron-covered edges nearer to the middle of the sounding-board, produced a larger volume of tone, whilst the oblique position of these strings to the blow of the hammers resulted in obtaining those rotating vibrations which gave to the thicker strings a softness and pliability never previously known. The new system of bracing was also far more effective, and the

* Whenever the overstrung system was experimented with before STEINWAY'S successful invention, it was done in the following manner: Instead of *spreading* the strings, they were even crowded more closely than in the old straight-scale instruments, or by combining the straight scale and diagonal system upon two separate sounding-boards, as was done in the grands of Lichtenthal, St. Petersburg, and uprights of Pape, Paris. Neither the one nor the other had the slightest similarity with STEINWAY'S construction, and neither met with success.

power of standing in tune greatly increased (see description at page 8).

The first grand piano constructed in this novel manner was played on, publicly for the first time, at the New York Academy of Music, on the 8th of February, 1859, and created a great and marked sensation. As early as 1861, grands of this construction were played in public in Germany by some of the most distinguished European artists, who have always preferred them for use in concerts; and, moreover, several intelligent manufacturers began to copy the novel construction of these instruments. STEINWAY & SONS exhibited at the London World's Fair, 1862, both kinds, grand and square instruments, and were awarded a First Prize Medal by the International Jury for *powerful, clear, and brilliant* tone, with excellence of workmanship, as shown in the pianos exhibited. Some intelligent European, as also American makers, now began to prefer this so-called "STEINWAY overstrung" or "American system" (both terms are synonymous) to the older systems with straight-stringed scale. The undoubted results achieved, viz.: increased volume of tone and far greater durability, even in the imitations of the new system, emanating from makers and cities almost previously unknown in the annals of this branch of art industry, were well calculated to awaken the highest interest among experts for and in the revolution which manifested its progress in the art of piano making, and which thus far extended only to the two kinds of instruments that have been named. As is sufficiently well known, the square piano has been completely superseded in Europe by the grand and upright.

Later, STEINWAY & SONS turned their attention to the improvement of the upright piano. The principles which had been of such intrinsic value in the grand pianos, were now, 1862, applied to the upright, in the short, broad and compact case of which this system produced far greater and more immediately apparent results.

In the course of the same year, upright pianos of this construction were exported by STEINWAY & SONS to Germany, where they at once were recognized as models worthy of imitation, and several such imitations were noticeable at the Paris Exposition, where, however, the instruments, with the apparatus for compression of the sounding-board, as exhibited by STEINWAY & SONS, excited special attention.

We now approach the great International Exposition of Paris in 1867.

Here we find many German, Swedish, and Russian makers, as allied to and identified with the STEINWAY system,

of which they exhibited a number of instruments. On the other hand, there were old and honorable firms—the founders of which had long departed this life—holding fast to the traditional principles of the old straight scales in grand pianos, and the oblique scale in uprights. Here, then, for the first time, we find the old and new systems in open competition; the first mentioned supported by influence and means, which the latter could not command, or which were scorned by its representatives.

Paris was precisely the field where anything uncommon, extraordinary and foreign, in opposition to customary and home productions, could successfully be fought, and every inch of the ground was fiercely contested. "The Gazette Musicale" published numerous articles with this tendency; illustrated comic journals represented the STEINWAY system as a bomb-shell, harmlessly bursting in the skies. That this could not be effected without great expenditure of money, must be apparent to everybody acquainted with the character of the press in the Metropolis of all Civilization.

In the meantime, the representative of STEINWAY & SONS had to restrict himself to describing their new, and to the majority entirely unknown, method of construction, to elucidating it by illustrations, and to furnishing the proofs that their improvements were based upon physical and acoustical laws. He submitted to the jury an apparatus which proved by experiments that a string develops the finest tone if strained as near as possible to the limit of elasticity, because at that point it gives the most vigorous transverse vibrations; and further he demonstrated, that the compression of the sounding-board matter, from the edges to the middle, results in an increased gradation of molecular vibrations, materially heightening the energy of tone, and its ready or prompt response and development. Even so distinguished a musical critic as the celebrated Fétis could only with extreme reluctance overcome the prejudice, that strings laying over and above each other must necessarily intermingle with and disturb each other's vibrations. He (Fétis), with great reserve, awaited the opinions and the judgment of celebrated physicists, until, finally, it became clear to this great mind, that strings laying over and above each other disturb each other as little as those laying side by side; the laws of acoustics, when applied to the disposition of strings, know neither "above" nor "below." However, the preparations of a combination for the purpose of prejudicing the jury and public opinion against the STEINWAY system were not as effective as those who had formed it had every reason to expect. Inde-

pendent experts,* whose attention had been awakened by the wrangling of the opposing party, far more distinguished by foolish fanaticism than by scientific arguments, determined one after the other to make self-dependent examinations, which completely turned the tide of opinion in favor of the STEINWAY system.

The merit of having reversed this current in our favor belongs to Gustav Doré, the celebrated painter and distinguished musical amateur; at his request, one of STEINWAY & SONS' overstrung grands was sent to his residence, in the Faubourg St. Germain, for use at one of his musical soirees, at which several of the most eminent artists assisted. From that moment the "Grand pianos Américains croisés" were seen and heard in the highest aristocratic circles and most artistic reunions of the French capital.

They journeyed from palace to palace, they were purchased by the richest of the rich; Baroness de Rothschild, among many others, bought one for the family castle, "Ferrières." Our limited space does not permit us to fully detail the extended recognition and admiration which they gained and elicited wherever they were heard.

A List of Awards and Honors, received by STEINWAY & SONS, will be found appended to this pamphlet.

The International Jury of the Paris Exposition awarded to the firm of STEINWAY & SONS the "First" of the Grand Gold Medals, and in their report placed it at the head of all awards, according to merit, made to American musical instruments. †

In 1867, during the Paris Universal Exposition, STEINWAY & SONS caused to be circulated many thousand copies of

* HECTOR BERLIOZ, the celebrated French Composer and acknowledged highest authority on *Effects of Sound and Instrumentation*, recognizes the progress in the following letter:

PARIS, September 25, 1867.

Messrs. STEINWAY & SONS, Piano Manufacturers, New York:

I have heard the magnificent pianos you brought from America, and which emanate from your factory. Permit me to compliment you upon the excellent and rare qualities which these instruments possess. Their sonority is splendid and essentially noble; moreover, you have discovered the secret to lessen, to an imperceptible point, that unpleasant harmonic of the minor seventh, which heretofore made itself heard on the eighth or ninth node of the longer strings, to such a degree as to render some of the most simple and finest chords disagreeable (cacophonique). This improvement is a great progress among the various others you have introduced in the manufacture of your pianos—a progress for which all artists and amateurs gifted with delicate perception must be infinitely indebted to you.

Accept, I beg of you, with my compliments, my highest respects.

Your devoted,

HECTOR BERLIOZ.

† The Boston and Paris representatives of the old straight-scale systems were later and personally held harmless, by an imperial act of mercy, in granting to them the Legion of Honor, the significance of which is not under discussion for the present, nor had it any connection with the awards of the jury.

an illustrated pamphlet, in the English, German and French languages, wherein they described minutely and in detail their system of manufacture, with the addition of drawings of their inventions and patents.

Inasmuch as the STEINWAY Pianos then on exhibition in Paris excited the admiration of all connoisseurs, by their great volume and beautifully sympathetic quality of tone, by their extraordinary capacity of standing in tune and unchangeableness, it must be self-evident that the pamphlet alluded to was eagerly sought after and universally read with the greatest interest. To the numerous reporters of every nationality, who at the time congregated at Paris, it proved a real gold-mine; its contents, with the drawings, were embodied almost unchanged in their printed reports on the Exposition, and in this connection it is more especially to be mentioned that Doctor Hanslick, of Vienna, in a book he published on "Musical Instruments at the Paris Exposition of 1867," took occasion to recommend to Austrian pianoforte makers the STEINWAY overstrung grand and upright pianos as models worthy of imitation.

Somewhat later, Doctor Oscar Paul, Professor at the University of Leipzig, wrote a work on "History of Pianoforte Manufacture," in which he reproduces the STEINWAY scales, their iron frames, and their apparatus for the compression of the sounding-board. After a searching and exhaustive analysis of previous achievements in this branch of art, Doctor Paul arrives at the conclusion that solely and exclusively to the STEINWAY system belongs the future.

The Government of Wurtemberg appointed a commission to the Paris Exposition, composed of piano-makers, residents of Stuttgart, for the purpose of purchasing the best pianos exhibited, the instruments so acquired to be placed in the Royal Industrial Museum, with the view of their serving as models in this branch of industry in the kingdom. After thorough examination of *all* pianos on exhibition, the commission selected a STEINWAY grand and STEINWAY upright piano.

In the year 1873, we find among the members of the Jury at the International Exhibition at Vienna for Group XV. Professor Hanslick appointed from Austria, Doctor Oscar Paul from the German Empire, and J. Schiedmayer, Royal Counselor of Commerce, appointed from Wurtemberg. These gentlemen found exhibited at Vienna, as a result of their commendations persistently made since 1867, in the numerous productions of the art of piano-making there exhibited as many experiments to imitate the STEINWAY pianos; the respective makers either endeavoring to

copy them as exactly as possible, or taking the leading principle as foundation and adapting the system according to their own ideas and intentions, or to the requirements of their respective markets. To all those who were conversant with and aware of the bitter opposition at Paris, the fact was a great surprise that many of the best French makers appeared at Vienna as exhibitors with very respectable imitations of the STEINWAY system.

In the autumn of 1873, STEINWAY & SONS had the unexpected pleasure of receiving a communication from Doctor Oscar Paul, wherein it was stated that the influence of our inventions upon the entire art of piano-making, as represented in the exhibition at Vienna, had been so manifest and self-evident that the Jury, of which he (Doctor Paul) was the reporter, had vividly regretted that the firm of STEINWAY & SONS was missed among the exhibitors, and that the Jury had felt it their duty to adopt the following resolution and embody it in their minutes :

ORIGINAL.

“Hinsichtlich der Amerikanischen Abtheilung ist sehr zu beklagen, dass die berühmte bahnbrechende Firma STEINWAY & SOEHNE, in New York, welcher die gesamte Clavierfabrikation so viel zu verdanken hat, nicht vertreten war.”

TRANSLATION.

(LITERAL.)

“In regard to the American division, it is much to be deplored that the celebrated path-inaugurating (path-breaking) firm of STEINWAY & SONS, of New York, to whom the entire piano manufacture is so greatly indebted, has not been represented.”

MAESTRO PETRELLA, PRESIDENT, - - -	ITALY, - - -	} Jury on Musical Instruments, Vienna World's Fair, 1873.
HERR DUMBA, FIRST VICE-PRESIDENT, - -	AUSTRIA, - - -	
PROFESSOR DR. LISSAJOUS, SECOND VICE- PRESIDENT, - - - - -	FRANCE, - - -	
SALVATORE MARCHESI, - - - - -	ITALY, - - -	
DR. EDWARD HANSLICK, - - - - -	AUSTRIA, - - -	
F. CERVENY, - - - - -	BOHEMIA, AUSTRIA,	
JOHANN HERZFELD, - - - - -	HUNGARY, AUSTRIA,	
JULIUS SCHIEDMAYER, - - - - -	GERMANY, - - -	
LUTHIER GALAIT, - - - - -	FRANCE, - - -	
DE SORIANO FUERTES, - - - - -	SPAIN, - - -	
MONS. REINKENS, - - - - -	BELGIUM, - - -	
DIRECTOR WEBER, - - - - -	SWITZERLAND, - -	
LA ROCHE, - - - - -	RUSSIA, - - -	
DR. OCSAR PAUL, PROFESSOR OF THE UNIVERSITY OF LEIPZIG, OFFICIAL REPORTER.		

We confess, that having on this occasion kept aloof from competition, we had not the remotest idea of being mentioned, much less could we anticipate receiving so flattering and honorable a distinction. But in connection therewith, the following facts must be taken into consideration :

Of the pianos awarded prizes in Vienna, by far the largest majority were constructed upon the STEINWAY overstrung

system, and the jurymen above mentioned found that they had accomplished what they had striven for and advocated ever since the Paris Exposition, in the interests, well understood and appreciated by them, of European art industry.

Under these circumstances, is it surprising that these gentlemen felt like giving a flattering testimonial to those who had rendered such an advance in Europe possible by making public in the most liberal manner all their manufacturing secrets ?

Doctor Edward Hanslick, as juror, wrote in his report, published in the “Exposition Gazette,” and after a thorough inquiry and description of all samples of our art industry there exhibited, as follows, viz. :

“But not only by his absence does STEINWAY shine in Vienna, but in a more real manner, viz., by his influence upon the entire European pianoforte manufacture. His overstrung system is now so universally adopted that we not only find the majority of the German and Austrian pianos constructed after STEINWAY, but also those of Spain, Italy, Sweden, and Russia, and even the distinguished firm of Pleyel of Paris has laid aside its old-time aristocratic reserve, and has humbled itself by adopting the new system.

“Of the pianos exhibited in Vienna, more than two-thirds are strung like STEINWAY’S ; to this portion, all countries have contributed excepting England, which is but sparingly represented, and Belgium.

“We do not mean to intimate that we see solely in the overstrung system the salvation of the piano manufacture. In order to reach the volume of tone and solidity of STEINWAY’S grands, other most essential requisites are necessary. Manufacturers may work or finish à la STEINWAY, first-class in every respect, or cheaply ; of both kinds our exhibition furnishes sufficient proofs.

“But there remains the fact of the conquering influence of STEINWAY’S piano construction, which has taken root quicker and more universally than any other effectual reform in the manufacture of pianos. It is, indeed, impossible to speak in detail of the pianos in our exposition without referring to STEINWAY, and if we cannot show any genuine STEINWAY pianos to strangers visiting the exhibition, we can answer the stereotype question, Where is STEINWAY? by replying, *Hic et ubique*—everywhere, in the pianos from all countries of the globe.”

DR. EDWARD HANSLICK.

Vienna, August, 1873.

DESCRIPTION OF THE INVENTIONS PATENTED BY STEINWAY & SONS.

THE firm of STEINWAY & SONS was established in March, 1853, and the reason why it assumed such gigantic proportions in comparatively so short a space of time, which, under the control of one single mind would have been absolutely impossible, may be ascribed to the fortunate circumstance that HENRY STEINWAY, the father, educated his five sons as thoroughly practical piano-makers, and soon made them his efficient co-operators.

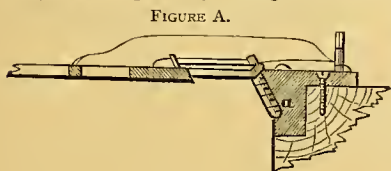
In the three surviving brothers were found united, in a high degree, just those capacities which are so eminently essential for conducting so vast an establishment. To one is assigned the exclusive direction of the purely mercantile and financial affairs of the firm ; another devotes his whole time and energy to the manufacturing interests, to the supervision of the machinery department, and to the purchase of materials and factory supplies in general ; while the third gives his exclusive attention to the development of new theoretical ideas, to novel experiments in the construction of pianos, and to acoustical and scientific researches. We have here the most judicious distribution of work, and a harmonious co-operation for one single purpose, aim, and end, so that unusual and extraordinary success was not to be wondered at.

In this way and manner only was it possible to produce such models and works of art, and to make the STEINWAY piano a perfect physical instrument, capable of producing musically the grandest and most beautiful tones of even shade and volume throughout the scale, from the lowest to the highest notes. Imitations have frequently been attempted without, however, approaching the high degree of perfection of the STEINWAY piano, requiring, as it does, a most thorough knowledge of physical and acoustic laws, and the practical application thereof.

The principal characteristics of this original system—now universally known as the “STEINWAY,” or “overstrung,” or “American” system—are described in the following patents (No. 1-14), which apply to the three different styles of pianos, viz.: the grand, square and upright instruments.

No. 1—PATENT AGRAFFE ARRANGEMENT, APPLIED TO ALL SQUARE AND GRAND PIANOS.

The full iron frame is so constructed that it overlaps and abutts against the wrest-plank body, by means of a projection specially designed for that purpose ; into this projection the agraffes (through which the strings pass) are screwed. The cut (figure A) shows the transverse section of that part in the iron frame covering the wrest-plank referred to ; *a* is the projection with the agraffe in position. The iron frame can thus resist the pull of the strings in every direction and an extremely pure and sympathetic tone results, together with great durability.



Overstrung scale in square pianos, invented by STEINWAY & SONS. The first piano so constructed was exhibited by them at the Crystal Palace, New York, 1855, and awarded the First Gold Medal.

FIGURE B.

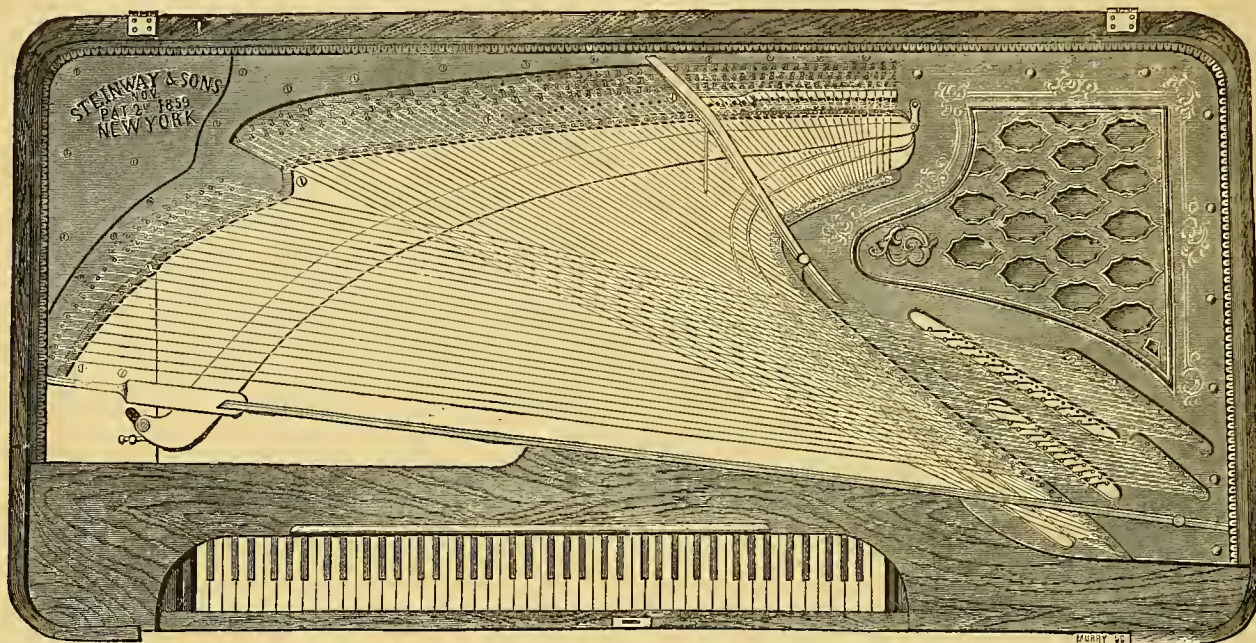


Figure B shows the construction of the iron frame, with overstrung scale and the agraffe arrangement throughout the entire length. Secured by letters patent No. 26300, dated November 29, 1859.

Shows also the duplex scale applied to the treble, described more fully in Patent No. 10.

No. 2—PATENT CONSTRUCTION IN GRAND PIANOS AND THE OVERSTRUNG SCALE.

These inventions have already been fully described in the introduction of this pamphlet. Suffice it to add here a few words as to their originality and marked influence upon the art of piano making.

The first overstrung STEINWAY grand piano had been played upon in concerts before the patent was secured; but never before had there been constructed either a grand or upright piano with strings laying over and above each other in the shape of a *fan*, and with such a judicious combination of straight and oblique iron braces, which gave to this system, although the pull of the strings was considerably increased, a strength of construction never previously attained.

The more important advantages of this system lay principally in the lengthened bridges, and their being shifted away from the edges of the case towards the middle of the sounding-board, whereby larger spaces between the strings were obtained and greater surfaces of the sounding-board brought into vibratory action; the result being, a larger volume of tone and a far richer quality.

FIGURE C.

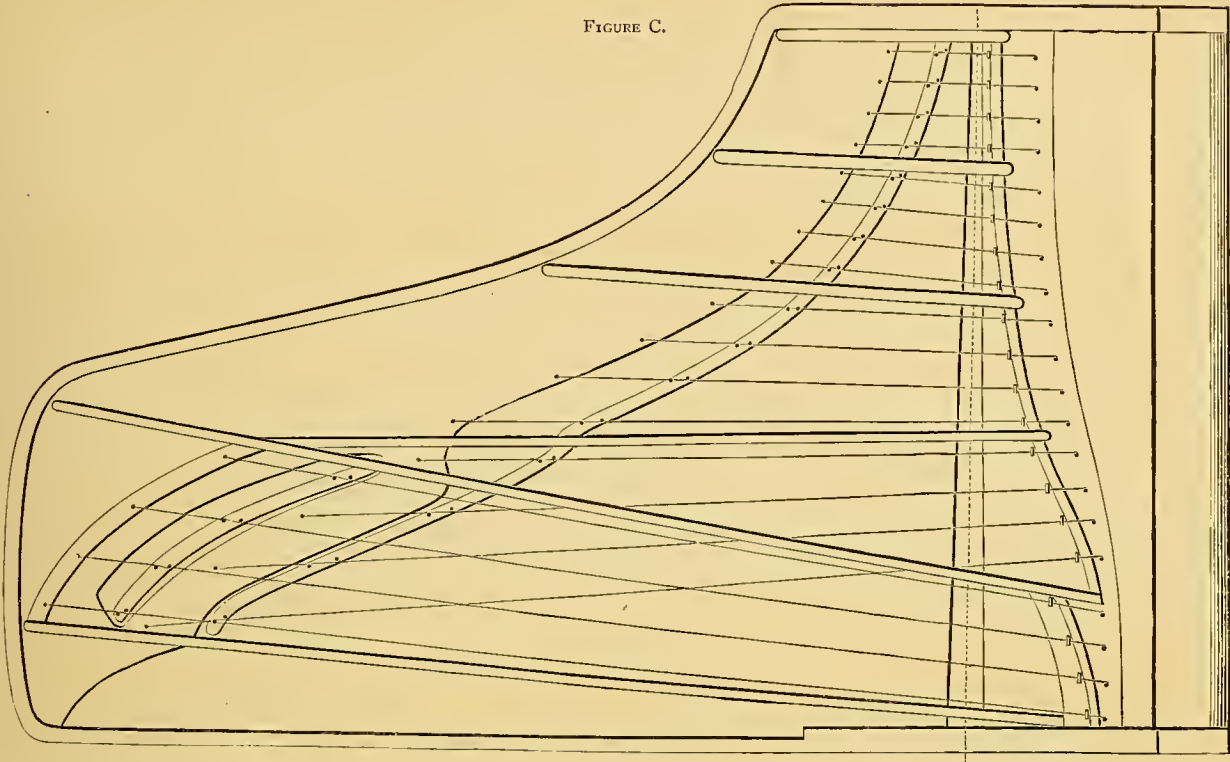


Figure C represents the original drawing in STEINWAY & SONS' patent for the overstrung scale, and the disposition of the strings in the form of a fan. Secured by letters patent No. 26532, dated December 20, 1859.

FIGURE D.

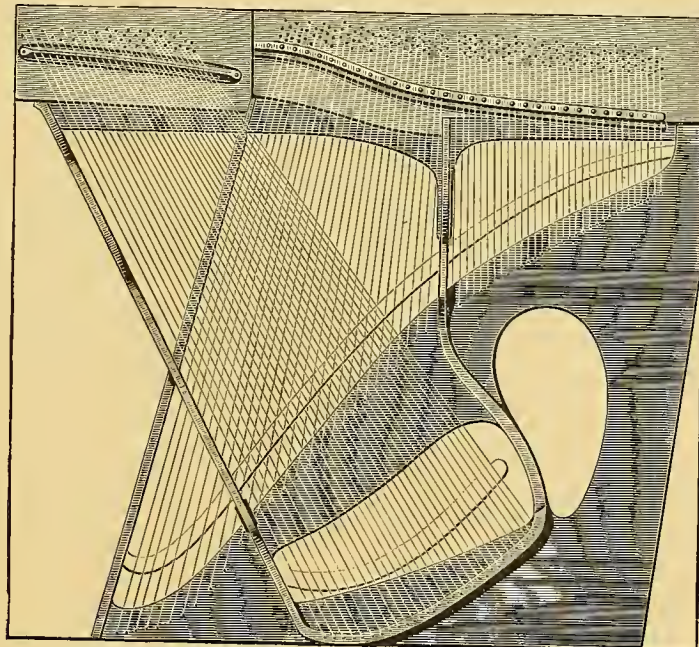


Figure D shows the overstrung scale (with bass strings spread over the others in fan-like shape) as used in upright pianos in 1862, invented by STEINWAY & SONS, and imitated by nearly all European and American manufacturers.

No. 3—PATENT RESONATOR, APPLIED TO ALL GRAND AND UPRIGHT PIANOS.

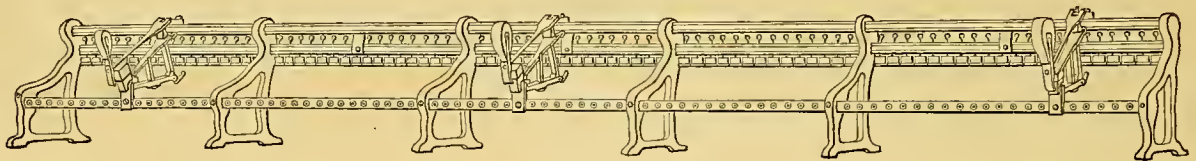
It serves the purpose of compressing at will the edges of the sounding-board, whereby the tension of the same can be very minutely regulated, at the same time placing the sounding-board permanently under control. Secured by letters patent No. 55385, dated June 5, 1866.

No. 4—PATENT TUBULAR METALLIC ACTION FRAME, APPLIED TO ALL GRAND AND UPRIGHT PIANOS.

Instead of the wooden bars which formerly supported the action, and which were liable to atmospheric influences, we now use for that purpose brass tubes filled with wood. This combination of metal and wood is of immense strength and absolutely unchangeable. These tubes are soldered to metal hangers in upright actions, and to metal standards in the grand piano actions. The hangers are secured by special claim in the same patent, while the standards are included in patent No. 93647, hereinafter described as No. 6.

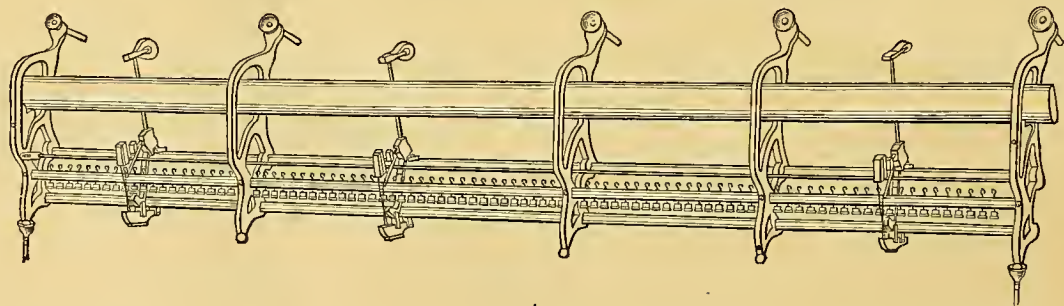
Made by machinery, very exactly adjusted in conformity with the respective scale, each one of these actions fits into any piano of the same style, and a new action can be adjusted by any one in case the hammers of the old one have become worn by long continued use.

FIGURE E.



E illustrates the tubular metallic frame, with standards for grand piano actions. Also several hammers with mechanism, in position.

FIGURE F.



F illustrates the tubular metallic frame, with hangers, for upright pianos. Also, the screws for fastening the action and standards (with conical half-round cavities), serving as points of support for the action.

The scale of the STEINWAY upright piano leaves a number of intermediate spaces for braces to counteract the pull of the strings; these spaces permit of the use of an equal number of hangers, which are screwed to the wrest-plank above, and serve the purpose of supporting the metal tubes of the action. Below, these hangers rest in the sockets of metal standards, the latter being screwed into the bottom of the key-board, which results in an absolute unchangeableness of the position of the action to the strings. Secured by letters patent No. 81306, dated August 16, 1868.

No. 5—PATENT VIBRATING SOUND-BOARD BRIDGE, WITH ACOUSTIC DOWELS, USED IN ALL GRAND AND UPRIGHT PIANOS.

This invention has become of importance in the manufacture of grand and upright pianos of small dimensions. The acoustic dowels are used in such places where suspended bridges are to be brought into connection with the sounding-board, and serve the purpose of transmitting vibrations from the one to the other. Secured by letters patent No. 88449, dated April 6, 1869.

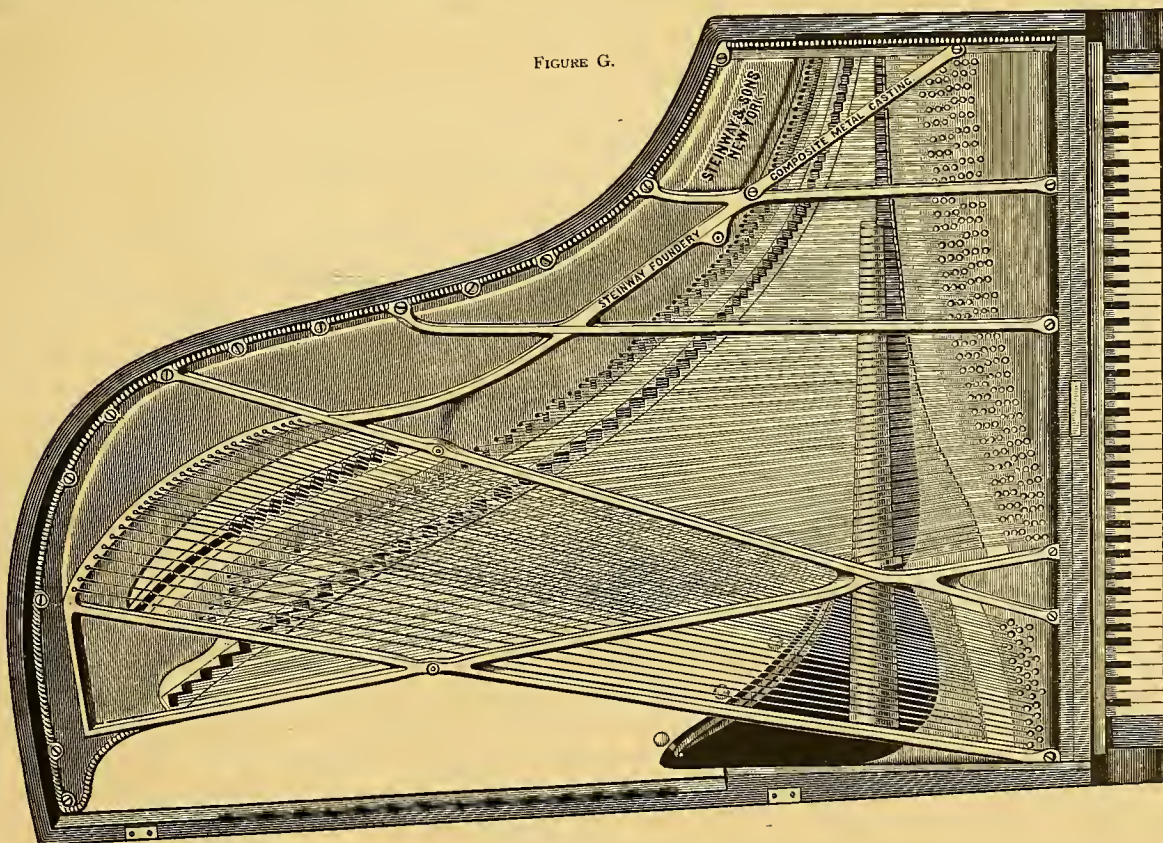
No. 6—PATENT INDEPENDENT DETACHED PILOT, AND METAL STANDARDS, APPLIED TO THE ACTIONS OF ALL GRAND PIANOS.

The inconvenience formerly existing, viz., that repairs to the action of a grand piano could not be made without the entire case being sent, gave rise to this invention, which does away with the formerly employed connection between the key-board and the action, and is based upon that qualification of the STEINWAY piano which is the natural sequence of Patent No. 4, heretofore described. Secured by letters patent No. 93647, dated August 10, 1869.

No. 7—PATENT RING BRIDGE ON SOUND-BOARD.

This invention is of vital importance in its application to grand and upright pianos. The lengthening of the sound-board bridge lines was made possible solely by the overstrung system, and its value was immediately apparent; in fact, it was at once recognized as the principal cause of the increased volume of tone. By the formation of the bridge in the shape of a ring to right or left, reversed to its original direction, a further elongation was obtained, and the unavoidable interruption of the several bridges, as formerly used, is entirely done away with.

This construction, in connection with the mode as described in Patent No. 5, yields a greater evenness of tone in the transition from the steel to the covered strings. Secured by letters patent No. 97892, dated December 14, 1869.



No. 8—PATENT REPETITION ACTION, WITH SPRING BACK CHECK, APPLIED TO ACTIONS OF SQUARE PIANOS.

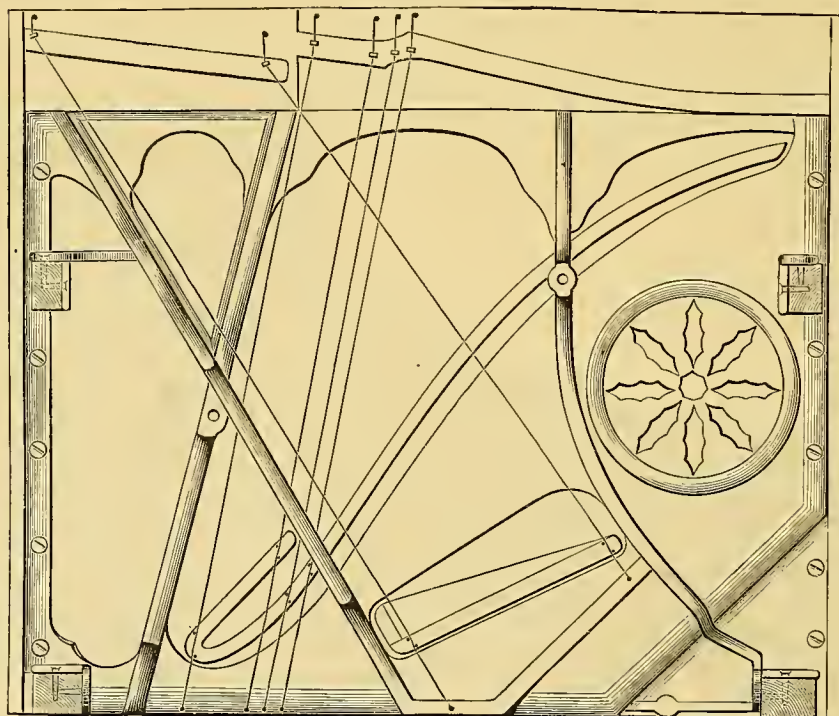
This action is made serviceable also for grand pianos, through the pull of a spring counterbalancing the weight of the hammer; the back-check being provided with a spring permits of the quickest repetition of the touch. Secured by letters patent No. 115982, dated June 6, 1871.

No. 9—NEW IRON CUPOLA AND PIER FRAME FOR SELF-COMPRESSION, APPLIED TO GRAND AND UPRIGHT PIANOS.

The flat form in the iron frame is here replaced by the cupola, or concave shape, viz., the rims or outer circumference of the iron frame are curved closely towards the sounding-board and directly surround it.

The scale of 1862, used in connection with Patent No. 5, groups the strings in three different divisions. By lengthening the bridge in the shape of a ring to the middle of the sounding-board, the problem was solved of bringing larger surfaces of the board into vibratory action. Only a thorough knowledge and careful calculation of both the weight and the pull of the strings (of differing specific weight) made it possible to obtain an even, large, and singing tone even in the smallest form of piano, with this construction.

FIGURE H.



H shows the cupola iron frame, with patent ring bridge, as used in upright pianos. The compression screws press the sounding-board against the metal frame; the latter rests, without any intermediate bushing, directly upon the board, and descends at certain points between the braces of the wooden case; here the compression screws bring to bear a pressure sideways against the under-bracing of the sound-board. A complete compression of the edges of the sounding-board is thus obtained by the pressure of the screws, combined with the strain of the strings upon the iron frame. This process is even simpler and more effective than that described in Patent No. 3, and gives to the sounding-board a resisting and sustaining power against the pressure of the strings.

FIGURE I.

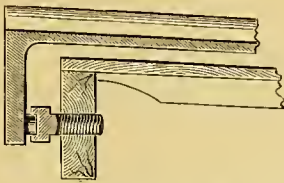
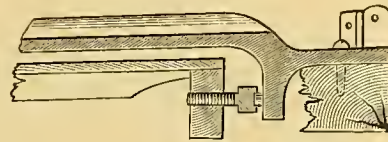


FIGURE K.

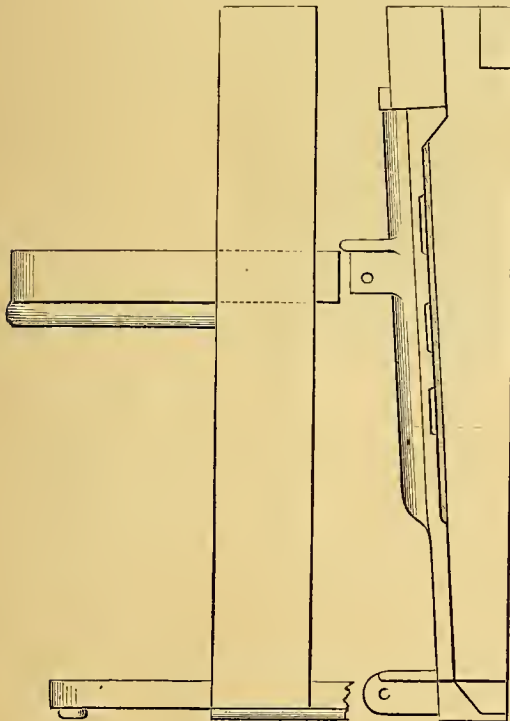


The above figures, I and K, show transverse sections of the cupola frame. I, illustrates the part below the wrest-plank, with compression screw, and K shows that lower section which lays behind the bass-bridge, also with compression screw.

Certain angular projections cast upon the iron frame serve (as the patent expresses it) to separate and isolate the resonating portion of the instrument from the front part, the latter consisting of the ornamental case work, the key-board, the pedal-board and the action, all of which exercise a considerable and rather disturbing influence upon the small sounding-board matter. The following illustration shows how the above-mentioned evils have been avoided by the described process. At the same time, by being able to separate the piano in two parts at pleasure, its transportation has been greatly facilitated.*

FIGURE L.

FIGURE M.



E. S. GILLER. X.A.

Figure L illustrates a side view of the front part of this upright piano which supports the key-board and the ornamental case work.

Figure M shows a side view of the sound-board part, with the cupola metal frame and the projecting flanges to which the front part of the case is screwed.

Also illustrates the novel manner of applying the wrest-plank, which, in its entire length and thickness, rests upon a metal basis, the latter passing between the wrest-plank and the sounding-board. This construction, while of greater lightness than heretofore, imparts to the instruments an extraordinary capacity of standing in tune.

* The first piano so constructed was used by the celebrated Dr. Franz Liszt, at the "Wartburg," in 1873, at the performance of his composition, "St. Elizabeth" (Die heilige Elisabeth). Up to that time no piano could be moved to the platform of this old and celebrated hall of song, and only by the above-mentioned facility of taking apart the STEINWAY piano, its use became possible.

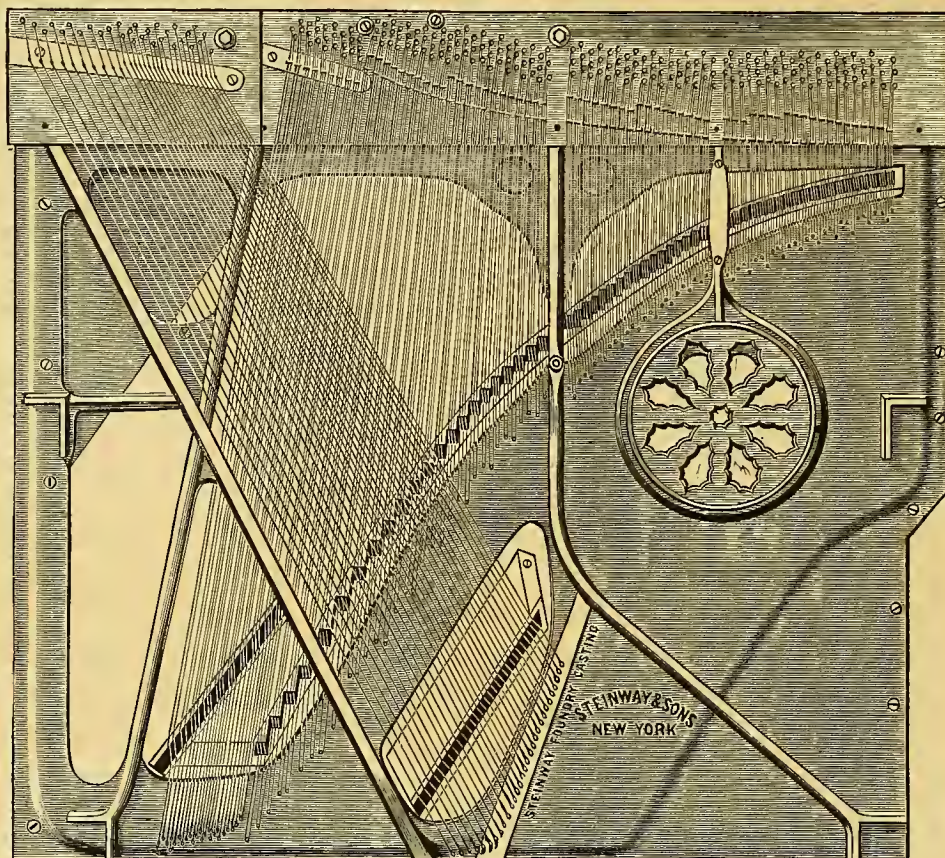
Extract from a letter from Dr. Franz Liszt to the celebrated composer, Metz-dorf, which letter, dated Weimar, September 27, 1873, is now in possession of MESSRS. STEINWAY & SONS.

"Pray tell MR. STEINWAY that his splendid upright piano shone to brilliant advantage at the festival performances at the Wartburg, where last Tuesday, it served under my fingers as 'Vice-Orchestra,' exciting general admiration.

"Yours, very truly,

"FRANZ LISZT."

FIGURE N.



Secured by letters patent No. 127384, dated May 28, 1872.

No. 10—GRAND DUPLEX SCALE, USED IN ALL GRAND, CABINET-GRAND AND SQUARE-GRAND PIANOFORTES.

The invention of the duplex scale is owing to the scientific investigations which Privy Counselor Professor Dr. Helmholtz has developed in his book, "Ueber Tonempfindungen" (on Tone Sensations).

It has been observed that the character or shade (timbre) of tone produced by the transverse vibrations of a steel string, changed just as soon as the fixed end-points upon the same sounding-board matter were of different material; for instance, if the agraffe was fastened into iron, the tone differed much from that which was produced when the agraffe stood in wood, and this induced STEINWAY to make a careful analysis of tone, if we may be permitted to so call it, by means of the tone and resonance tubes constructed by Helmholtz.

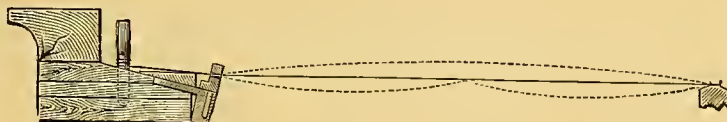
The discernment of the purity of tone depends upon practice acquired by the physical examination of the causes of impure tone mixtures. The trebles of many pianos develop such strong tone mixtures, from the sounding of the material of fastening, that something is substituted in place of tone, which is neither sound nor tone, but a thud of the approximate pitch of tone, produced and determined by the single fundamental vibration of the string.

When heavier strings are used, and the tension thereby increased, the evil becomes still worse; under such circumstances, the capacity of the string of being divided in its vibrations is lessened, and it is impossible to obtain the sounding of the perfect overtones with the fundamental tone which impart and give to it both purity and richness.

The duplex scale, in fact, is a second scale, of exactly and mathematically proportioned and shortened length, added to the principal scale.* This second or duplex scale is applied between the tuning-pins and the end-points of the strings upon the wrest-plank.

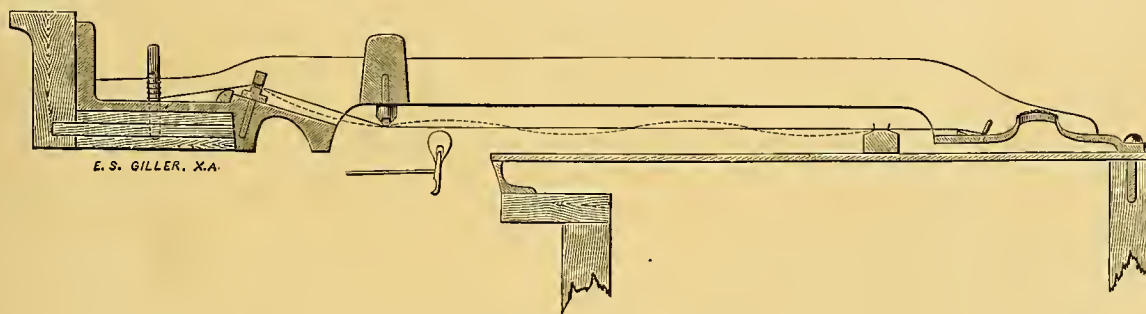
The next following illustration, Figure O, shows the former system of the application of the agraffe; the upper punctuated line shows the vibrations of the fundamental tone, in which, in thinner strings, but one over-tone or dividing point was formed, as is indicated by the lower punctuated line.

FIGURE O.



The next following illustration, Figure P, shows the patented construction brought to perfection, inasmuch as a higher dividing node has been chosen at will, which invariably contains all the lower overtone vibrations down to the fundamental tone of the entire length of the string.

FIGURE P.



P shows the transverse section of a grand (fully described under Patent No. 14), with capo d'astro bar and cupola frame.

The tone produced by a string consists of a fundamental tone together with a number of partial over-tone vibrations; the latter are again divided into perfect consonances (the over-tones of which accord in perfect harmony), and in disonances (affected by impurities of tone), such as for instance the chord produced by the prime with the diminished third and seventh. These latter have been avoided in the duplex scale, so that but perfect consonances are developed, such as the prime with its octave and super-octave with its fourth and fifth; they are used in such high pitch, that a disturbing after-sound or vibration is avoided. At the same time the principal string receives the impulse to divide itself in its vibrations at the smallest distances; this is attained by the points in the agraffes which permit of the crossing of the nodes of vibration. These qualities were not possessed by the short stiff strings, as formerly used.

The tone is thereby rendered richer, purer, and more musical, while its carrying capacity is considerably augmented. † Secured by letters patent No. 126848, dated May 14, 1872.

* The strings between bridge and hitch-pin are also a shortened scale; the pitch of each string of this shortened scale must be compared with the pitch of the same string in the principal scale, which gives to the tuner a perfect control of the proper adjustment of tone and transport of the tension over the bridge.

† Professor Dr. Helmholtz writes about this invention as follows:

MESSRS. STEINWAY & SONS:

GENTLEMEN—I can only congratulate you on the great improvement you have achieved by the introduction of your duplex scale into your pianofortes. I have repeatedly and carefully studied the effects of the duplex scale just applied to my STEINWAY grand piano, and find the improvement most surprising and favorable, especially in the upper notes, for splendid as my grand piano was before, the duplex scale has rendered its tone even more liquid, singing and harmonious. I deem this improvement very happy in its results, and, being based upon scientific principles, capable of still greater development.

Yours, very truly,

H. HELMHOLTZ.

BERLIN, August 13, 1873.

No. 13—CAPO D'ASTRO-AGRAFFE.

To elucidate the importance of the agraffe here below described, we refer to the illustration, figure P (page 15), of the duplex scale in patent No. 10.

Agraffes* serve the purpose of limiting the vibrations of the strings at that end point which is opposite to the resonance body, viz., the sounding-board.

In the description of the duplex scale it has already been shown how injuriously a pure tone may be affected by agraffes wrongly constructed, or secured in an improper manner.

The use of the duplex scale necessitated that the touching point at which the long and short scale unite should be reduced to a minimum, because the point of crossing of the highest overtones is an exceedingly narrow one.

This newly constructed agraffe of copper alloy has inserted upon its upper edge a cap of steel, which renders it impervious to impressions, or being flattened by pressure or blows. It serves to determine the limiting point between the long principal scale and the partial or duplex scale; it makes no vibrations of its own, and thus every injurious bytone is avoided. Secured by letters patent No. 170646, dated October 20, 1875.

No. 14—NEW METAL FRAME CONSTRUCTION IN GRAND PIANOS.

As regards the resisting strength of a grand piano, it was hitherto of no material consequence whether the iron frame was of cast or wrought iron. The total pull of the strings in a grand piano in different factories fluctuated between 25,000 and 36,000 lbs. (about 2,000 lbs. being the average tensile strength to the square centimeter of good ordinary cast-iron). This limit, however, could not be exceeded without danger of a break in the iron frame.

FIGURE R.

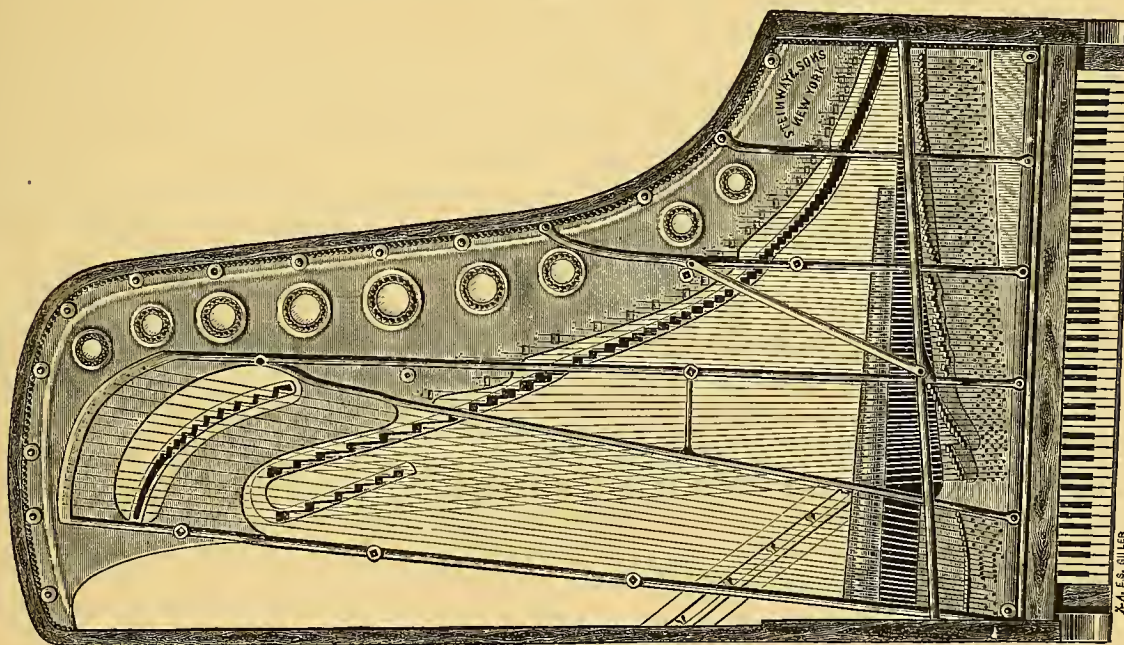


Figure R shows the new Centennial Grand overstrung scale, the patented design of the cupola iron frame, with the new capo d'astro bar for the reception of the steel-capped agraffes underneath, and serving as point of connection with all the other braces of the iron frame; shows also the oblique bar, the duplex scales and patent sound-board ring-bridges.

* Curiously enough we see at present advertised as something quite new, under the name of "double-bearing agraffes," the first primitive experiments made with agraffes, in which holes were drilled without conical ryming, whilst every piano-maker knows that these first historical experiments were subject to the grave fault that in tuning, the strings would not readily slide (transport), and broke easily under the blow of the hammer at the sharply curved point in the agraffes.

The grand pianos heretofore made had braces against the pull of the strings, which were either of wrought iron and screwed on the iron plate, or were cast with the latter in one piece. This resulted in a loss of firmness, for the factor of safety could only be based upon the "shearing" strength of these braces (which in cast iron is placed only at 500 kilograms per square centimeter, for instance, by the Prussian government in public buildings, etc.). The problem to be solved was, therefore, to combine the construction of the braces with the wrest-plank in such a manner, that the absolute strength attained would be a perfect factor of safety; in other words, the weak spot in the braces used heretofore was very near their connection with the wrest-plank part, so that whenever inferior metal was used, or the tension of the strings was very great, the braces would often break, because the level of this tension was *under* the level of the braces. By the construction of a second cross-bar *over* the strings, which runs parallel with that cross-bar forming the angular projection of the wrest-plank part of the iron frame *under* the strings, the latter are placed between the two cross-bars, the longitudinal bars setting with straight resisting pressure directly against the upper cross-bar.

This new principle of construction is, however, vastly benefited by the important fact, that while the very best American iron, according to good authorities, reached a tensile strength of 3,000 lbs. to the square centimeter, STEINWAY & SONS finally succeeded, by establishing their own foundry, and a thorough study of the metal alloys of the various brands of crude iron, in producing steel-like castings, possessing an absolute resisting strength of 5,000 lbs. pull to the square centimeter, and having, at the same time, most energetic capacity of vibration. This rendered it possible to increase the pull of the strings to 75,000 lbs., with absolute freedom from danger of a fracture of the metal frame.

This important progress in the art of piano manufacture is based firstly upon the vastly increased strength of the material, and secondly upon a new construction which unites the angular projection of the iron frame, overlapping and abutting against the wrest-plank, with a capo d'astro bar. This bar runs parallel with the wrest-plank above the strings, and serves as point of connection for all iron braces; at the same time it is used for the insertion, underneath, of the newly patented agraffes heretofore described. As a result of this construction, the suspended wrest-plank can neither be raised nor depressed by the largely increased pull of the strings.

The iron frame in connection therewith was constructed in the form of a cupola, in accordance with the results of varied experiments and thorough tests of the material used in the foundry.

A number of raised and bell-shaped holes or openings in this mass of metal permit the vibrations of the sounding-board underneath to be transmitted freely and without hindrance to the outer air.

Tensions or strains (planes of weakness) to which castings are liable, are entirely avoided by this process; a diagonal brace prevents the sideway curving of that part of the iron frame to which the strings are fastened.

Secured by letters patent No. 170647, dated October 20, 1875.

The above illustrated design is a representation of the braces, the scale and the cupola form of metal construction, with its ornaments. The selection of these ornaments with the projecting edges, and the cupola-shaped body of iron, was made, as already intimated, to prevent, and in fact entirely do away with the tensions (planes of weakness) to which castings are subject, and to aid the proper shrinkage of the metal.

The combination of all these improvements renders this construction not only elegant in appearance, but extraordinarily efficacious against the pull of the strings, and also powerfully aids the free development of a good quality of tone.

The design of this iron frame, with its ornaments and fastenings, is also secured by letters patent No. 8782, dated November 9, 1875.

LIST OF PIANOFORTES
ON EXHIBITION BY
STEINWAY & SONS,
AT THE
CENTENNIAL EXHIBITION, PHILADELPHIA, 1876.

I.

CONCERT GRAND PIANO, No. 34002, style 5 in STEINWAY & SONS' Illustrated Business Catalogue; $7\frac{1}{3}$ octaves, rosewood case, length 8 feet 9 inches.

II.

CONCERT GRAND PIANO, No. 33710, same instrument, in ornamental rosewood case, serpentine mouldings, and richest carved legs and lyre.

III.

CONCERT GRAND PIANO, No. 34067, style 3 in Catalogue; $7\frac{1}{3}$ octaves, rosewood case, length 8 feet 5 inches.

IV.

CONCERT GRAND PIANO, No. 34115, style 3 in Catalogue; $7\frac{1}{3}$ octaves, rosewood case, length 8 feet 5 inches.

V.

PARLOR GRAND PIANO, No. 32710, style 1 in Catalogue; 7 octaves, rosewood case, length 6 feet 8 inches.

VI.

UPRIGHT CABINET GRAND, No. 32718, style 3 in Catalogue; $7\frac{1}{3}$ octaves, rosewood case, height 4 feet 8 inches.

VII.

UPRIGHT CABINET GRAND, No. 34132, style 3 in Catalogue; $7\frac{1}{3}$ octaves, in American Walnut and California laurel wood, height 4 feet 8 inches.

VIII.

UPRIGHT PIANO, smallest size, No. 33891, style 1 in Catalogue; 7 octaves, rosewood case, height 3 feet 10 inches.

IX.

SQUARE GRAND PIANO, No. 34321, style 5 in Catalogue; $7\frac{1}{3}$ octaves, in richly-finished and ornamental case; length 6 feet $11\frac{1}{2}$ inches, width 3 feet 6 inches.

NOTE.—It may be of interest to state, as showing the rapid increase of Messrs. STEINWAY & SONS' business, that the pianos exhibited by them at London, 1862, were numbered 4607, etc., etc.; those exhibited at the Paris Exposition of 1867 were numbered 12529, etc., etc.; whilst those now exhibited at Philadelphia have reached No. 34321, showing that in the interim of nine years since the Paris Exposition the firm has manufactured and sold 22,000 Pianofortes.

LIST OF ARTICLES, CASTINGS AND PIANO HARDWARE, ETC.,
MADE IN
 STEINWAY & SONS' FOUNDRY AND METAL WORKS,
AT
 ASTORIA, LONG ISLAND,
AND
 EXHIBITED BY THEM IN THE MACHINERY HALL OF THE CENTENNIAL EXHIBITION, PHILADELPHIA, 1876.

One rough Casting of Full Frame for largest Grand Piano, as taken from the mould.

One full Frame for largest Grand Piano, finished in bronze, with Agraffes, ready to be put into the instrument.

One do. for a Square Piano.

One do. for an Upright Piano.

One complete Patent Tubular Metallic Action Frame, for Upright Piano, with Metal Hangers, and Screws for fastening to wrest-plank above, and Spherical Ends below, ready to set into the sockets. Showing also several Hammers, with mechanism adjusted and in position.

One do. for Grand Piano.

One Show Case, containing sixty different Articles of Hardware, used in the construction of a STEINWAY Grand Piano, also fifty-four different Pieces for an Upright Piano, and thirty-three different Pieces for a Square Piano.

One* Testing Machine (self-constructed), with Sample of Castings, which show a uniform resisting strength of 5,000 lbs. and upwards to the square centimeter.

One Show Case with broken Samples of Castings, made at different times, partly chilled, showing the uniformity of metal structure.

Analysis of Metal used for STEINWAY & SONS' Castings, made by Professor Otto, of Brunswick, Germany :—

	Specific weight, 7.28														
Contains in 100 parts :	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding-left: 10px;">94.71 Iron.</td> </tr> <tr> <td></td> <td style="padding-left: 10px;">3.34 Carbon (as graphite).</td> </tr> <tr> <td></td> <td style="padding-left: 10px;">0.15 Carbon (bound).</td> </tr> <tr> <td></td> <td style="padding-left: 10px;">1.20 Silicium.</td> </tr> <tr> <td></td> <td style="padding-left: 10px;">0.50 Manganese.</td> </tr> <tr> <td></td> <td style="padding-left: 10px;">0.08 Sulphur.</td> </tr> <tr> <td></td> <td style="padding-left: 10px; border-top: 1px solid black;">99.98</td> </tr> </table>	{	94.71 Iron.		3.34 Carbon (as graphite).		0.15 Carbon (bound).		1.20 Silicium.		0.50 Manganese.		0.08 Sulphur.		99.98
{	94.71 Iron.														
	3.34 Carbon (as graphite).														
	0.15 Carbon (bound).														
	1.20 Silicium.														
	0.50 Manganese.														
	0.08 Sulphur.														
	99.98														

“Traces of Phosphor not definable ; no authenticated quantity of Arsenic.

One complete section of a Patent Tubular Grand Piano Action, consisting of a single tone, with its key, hammer, and mechanism set up on tubular action frame, representing the STEINWAY system in motion.

One do. for Upright Piano also in motion.

* Every full iron frame bears the date when cast, and with each series of castings one test piece is cast, which is tested with this machine, and must possess the standard tensile strength of 5,000 lbs. to the square centimeter ; the limit of strength reached being duly booked, so that every full iron frame thus cast can conscientiously be warranted by the firm.

PIANOFORTE MANUFACTORY

OF

MESSRS. STEINWAY & SONS.

THE Pianoforte Manufactory of STEINWAY & SONS is located on Fourth avenue, in the City of New York, on which its frontage occupies the entire block between Fifty-second and Fifty-third streets (201 feet), the depth of the front building being 40 feet. The wings of the main building, extending down Fifty-second and Fifty-third streets, are each 165 feet in length by 40 feet in depth; the entire building, including the basement, is six stories high. Adjoining the Fifty-third street wing, and being a continuation of the same, is located a building of 100 feet front and four stories high. These factory buildings have an uninterrupted frontage extent on the avenue and streets named of 631 feet.

The architecture of the building is of the modern Italian style; it is built in the most solidly-substantial manner, of the best brick, with lintel arches of the same, and brick dental cornices. The basement walls are two feet thick, set in concrete; the first story walls, 20 inches, and the upper walls 16 inches in thickness. The factory buildings proper cover twenty city lots of ground, seventeen others being used for seasoning lumber, etc. The side-wings are separated from the main front building by solid walls, extending from basement to roof, passage-ways running through them, each of which is provided with double iron doors on either side, so that in the event of a fire occurring, only that portion of the building in which it originated can be destroyed.

In the yard, which is surrounded on three sides by the front building and its wings, are three separate buildings, each two stories high, viz. : one of 40 × 75 feet, devoted to the steam kiln-drying of all the lumber used; the second, 20 × 100 feet, to the assorting and preparing of all the veneers; and the third, of 29 × 81 feet, to the making of cases for Upright Pianos.

The floors of the New York factory buildings have a surface of 175,140 square feet. In the rear of the buildings, and on both Fifty-second and Fifty-third streets, are open spaces of ground containing an area of 42,500 square feet, on which 3,500,000 square feet of lumber are constantly stored in the open air, for seasoning purposes; each separate piece of which is exposed to all the atmospheric changes for two years, and then kept in the steam drying rooms for three months, prior to being used in the factory.

The drying rooms are divided into seven compartments, containing over 400,000 feet of lumber, constantly under the process of kiln-drying, at a temperature of 130° Fahrenheit.

Beneath the yard alluded to, there are fire-proof vaults for the storage of coal, and here are also placed four steam boilers, of the aggregate power of 540 horses, by which the necessary amount of steam is generated for the 76,000 feet of pipe used in heating the drying rooms and workshops, and driving two steam-engines of respectively 300 and 80 horse-power; these, in turn, putting in motion no less than 165 different labor-saving machines.

It would require the extent of a goodly sized volume to describe the 165 different planing, sawing, jointing, drilling, mortising, turning, and other machines used in this factory, and to elucidate their various objects; it therefore must suffice to state, that from careful and moderate estimate, they replace the hand labor of at least 900 workmen, added to which they do all the hard and difficult work which formerly, to so great an extent, endangered the health, and even the lives, of the workmen employed in this description of labor.

In the wing on Fifty-third street, the bottoms, wrest-planks, and other portions of the Piano are glued and shaped by machinery, in the lower two floors. The floor above is occupied by the case-makers, who fit together all the parts made below, veneer the cases, and prepare them for the varnish rooms, which occupy the entire top floors of the front building and side-wings, and extend a length of 531 feet.

From these last described floors the completely finished and varnished cases are transferred to the floor beneath, in the front building, where the sounding-boards are fitted into the cases; on the next floor below the Pianos are strung, and the action and key-boards are fitted in, which latter are manufactured on the corresponding floor of the wing on Fifty-second street. Here, also, the ready-varnished tops, the legs, and the lyres of the instruments are adjusted and put on; after which, on the next floor, the action and touch are carefully regulated and equalized to the greatest degree of accuracy. After this is completed, the thoroughly finished Piano is sent to the salesrooms, where it receives its final polish prior to being delivered to the purchaser. On the same floor of the building on Fifty-third street, the office of the establishment is located, from which, by the medium of a private magnetic telegraph, the manufactory is brought into direct communication with the ware-rooms on Fourteenth street, as also through cable across the East river with STEINWAY & SONS' Saw Mill and Metal Works, at Astoria.

The *action-rooms* are located in the building adjoining the Fifty-third street wing, and are among the most interesting portions of this vast piano manufactory. Here the machinery used is of the finest and most elaborate description. The utmost care and thorough supervision is exercised, the choicest material only used, and the most skillful workmen employed to construct the most perfect and unchanging action that it is possible to produce, and that will do its work with unerring precision through a long series of years.

Next to the office is the store-room, where the actions, felt, leather, screws, ivory, strings, tuning-pins, etc., used in the construction of the inner portions of the piano, are stored. Of these articles, STEINWAY & SONS invariably keep a vast supply on hand, the average value of which is from \$40,000 to \$50,000.

No fire is used throughout the entire buildings, every portion being heated by steam pipes, and lighted with gas. Three large steam elevators are used for the transportation of all heavy articles, either up or down. Steam is kept up night and day, to insure uniformity of temperature in the factory and drying-kilns at all times. Besides the night-engineer, there are four watchmen patrolling the establishment at intervals of thirty minutes, each man carrying a registering watchman's time-piece, which records the exact minute he arrives at each station on the various floors, and at once showing the fact if the watcher has neglected his duty.

This vast manufacturing business is divided into eighteen departments, each of which is placed under the control and constant inspection of a skilled foreman, these, in turn, being controlled by a head foreman. No workman is permitted to work at more than one branch of the business; thus, from the fact that every workman is continually making only one and the same article, he achieves an absolute perfection in his work, unattainable in small factories, where such strict subdivision of labor cannot exist. Again, each article, until it is finally completed, passes through the hands of a number of different workmen, none of whom receive it from the previous workman in that stage of manufacture unless it is perfectly faultless in every respect.

It may therefore justly be said, that STEINWAY & SONS' manufactory, with its elaborate machinery, implements, and corps of skilled workmen, represents, in a remarkable degree, the highest possible state of organization and division of labor. An average of one thousand three hundred instruments are constantly progressing through the various stages of manufacture, from incipiency to completion. The number of workmen in this establishment is, on the average, six hundred (exclusive of about one hundred and fifty employed in the Astoria works), who turn out sixty instruments per week, viz., ten grand, twenty-five upright, and twenty-five square pianos. The total sum paid by STEINWAY & SONS to all their employees, as wages, during the year 1875, was \$603,127.

The control of the factory, the warerooms and the various purchases, is under the direct personal supervision of the members of the firm of STEINWAY & SONS. All inventions and changes in the manufacture of pianos, and all other important business acts, are the result of common consideration and debate among the members of the firm, and to this harmonious co-operation and unanimity of action a large proportion of the unexampled success which the firm has achieved may be attributed.

STEINWAY & SONS'

Saw Mill, Iron and Brass Foundries and Hardware Works,

AT

ASTORIA, LONG ISLAND, N. Y.,

Opposite One Hundred and Twentieth Street, New York City.

THE vast and constantly increasing demand for STEINWAY & SONS' pianos, both for home consumption and foreign exportation, has compelled them to still further increase their manufacturing facilities, and add additional branches which no other pianoforte factory in the world possesses.

A few years since, STEINWAY & SONS purchased a plot of ground comprising 400 acres, at Astoria, Long Island, distant but four miles from their New York manufactory, and having a water frontage on the East river of over half a mile. On this property, so admirably located, and suitable for the purposes required, STEINWAY & SONS have erected their Steam Saw Mill, Iron and Brass Foundries, Boiler and Engine Houses, and a large building for the drilling, finishing, and japanning of the full iron frames and other metal portions (used in the construction of their Pianofortes), which are manufactured under their sole and special supervision, in place of being bought—as by all other piano-makers—ready-made of outside parties.

All of these new buildings are each two stories high, and are constructed in the most permanently substantial manner, of brick and stone. They form a hollow square, with a frontage of 212 feet, and a depth of 200 feet, the water-front of which is occupied by a substantially constructed dock, 384 feet in length.

At the Saw Mill, all the lumber, rosewood and various other kinds of wood used in the construction of a STEINWAY piano—whether in plank or veneer—is sawed out from the solid logs, under the personal supervision of a member of the firm, and every faulty portion immediately cast aside.

The important circumstance, that STEINWAY & SONS own their foundry, which they personally control and superintend, where nothing but the best brands of metal are used for the casting of that most important portion of a piano, the iron frame, offers a perfect guarantee that the latter are free from all imperfections.

All other pianoforte manufacturers—*without exception*—are compelled to have their iron frames cast at ordinary foundries, where they are often subject to the use of inferior, brittle, and second-hand metal, and insufficient care in casting, the chief aim, on account of close competition among iron foundries, being cheapness; hence, an imperfection in such iron frames is not an uncommon occurrence.

The Iron Foundry of STEINWAY & SONS is specially built for the casting of full metal frames for their pianofortes. Only the choicest brands of metal and coal are used, and after lengthy and costly experiments, STEINWAY & SONS have

succeeded in producing composite metal, closely resembling cast-steel, of almost double the strength of ordinary cast-iron, and yet of comparative lightness. These qualities produce in the STEINWAY piano an increase of vibratory power, and the advantage of remaining longer, firmer, and better in tune than any other instrument heretofore produced.

All the numerous metallic parts required in the construction of a piano are here, in the various establishments, either cast, modelled or prepared for immediate use by the most skillful artisans obtainable, or by specially constructed machinery. This system guarantees the greatest possible precision and exactness, and is the very foundation of the wonderful lightness, responsiveness, and durability of the STEINWAY actions, as is fully explained in Patent No. 4.

As stated above, the property is situate on the East river, which has sufficient depth at this point to permit of vessels laying alongside the docks erected for the purpose of unloading their freight.

Pines and fir trees from the far West, as well as other kinds of softer and harder woods, are brought by barges, via canal, uniting the Hudson river with the great sweet-water lakes of the north; the finer kinds, from the tropics, for ornamental purposes, and those from the North, as spruce, for sounding-boards, are here received and unloaded. According to quality, and the use for which they are intended, these are either placed in water-basins or stacked up for air drying. By means of an ingenious machine, immense logs are dragged to the saw mill, where they are cut or quartered according to demand and use, by gigantic circular veneer saws or large band saws, after which the lumber so cut is exposed on level ground to the eastern sea-breezes or western dry land-winds, and only when thoroughly well seasoned is it removed from Astoria to the factory for final use in the manufacture of pianos. No other piano factory, either in America or Europe, possesses such facilities in the same degree, and they unquestionably constitute the rational foundation of a thorough and excellent manufacture.

THE
WAREROOMS AND CONCERT HALL
OF
STEINWAY & SONS.

These buildings are located on East Fourteenth street, between Union Square and the Academy of Music (the Italian Opera House of New York). They have a frontage of white marble, four stories in height and 50 feet in width, the front portion having a depth of 84 feet; from which point the buildings are 100 feet wide, extending through the entire block to Fifteenth street, a distance of 123 feet.

The entire first floor, from Fourteenth to Fifteenth street, a depth of 207 feet, is exclusively devoted to the exhibition and sale of the pianofortes manufactured by the firm.

The second story of the building, fronting on Fourteenth street, contains the smaller hall, 84 feet long by 25 feet wide, which is available for lectures, concerts of chamber music, and parlor entertainments, when a large auditorium is not desired. By means of sliding partitions, this hall can be connected with the large STEINWAY HALL, immediately in its rear, the stage of which fronts on Fifteenth street.

In the two upper stories of the main building on Fourteenth street, a number of spacious studio rooms are set apart for the gratuitous use of eminent resident pianoforte teachers, where their lessons are given.

STEINWAY HALL proper—This spacious and unrivalled Temple of Music and Art of the United States, was erected in 1866, and its internal decorations completed in 1868—the warerooms on Fourteenth street having been built in 1863.

The hall is 123 feet in length by 75 feet in width, with a height of 42 feet. There are 2,000 numbered seats in the hall, including those in the two balconies, which partially extend into the front building; but the seating capacity of the hall may at any moment be enlarged by the opening of the sliding partitions, which open into the smaller hall, when the length of floor is extended to 207 feet, affording ample accommodation to 3,000 persons.

The entrances and exits of this hall are unusually capacious and entirely free from obstruction, as, in addition to the two main entrances from Fourteenth street, with their high and lofty vestibules, there have been provided exits on each side of the stage, by doors seven feet in width, leading directly to the staircases and exit doors on Fifteenth street, thus rendering it possible to clear the hall, however crowded it may be, within a very few minutes.

That great desideratum in the erection of a public building, viz., perfect ventilation, has been most successfully attained in STEINWAY HALL—scientifically constructed metallic ventilating towers on the roof of the building having by their action proved the most complete success. The lighting of the hall by electricity is under such perfect control that it may be made as brilliant or subdued as may be required, and that instantaneously.

The entire building, from foundation to roof, is constructed in the most thoroughly substantial manner. The basement walls, which are of granite, are three feet in thickness, and the brick walls, from the first story to the roof, have a thickness of thirty-two inches, still further strengthened by heavy external buttresses, all the work being laid in solid cement in place of ordinary mortar, the object being to enclose and surround the inner column of air in the firmest and most reliable manner by the hardest obtainable materials. With the view of achieving the same results in

the ceiling of the hall, the double and extremely substantial roof is cased with heavy slate, and iron zinc, the highly decorated inner ceiling being, however, constructed for acoustic purposes of light, but thoroughly long seasoned wood, which does not rebound the vibrations of sound.

This thoroughly efficacious method of firmly enclosing the interior column of air was fully recognized and appreciated by Messrs. STEINWAY, as the chief element in the obtainment of perfect acoustic qualities in the construction of their hall, it being a fixed acoustic fact that the inner air of the auditorium must not be permitted to escape anywhere, for thus only can it properly react against even the faintest concussion. As a further auxiliary to the concentration of sound, and its development from the stage to the auditors, two boxes were erected, one on each side of it, thus gradually narrowing the stage towards the rear. One of these boxes contains the organ, the wind chests of which are placed in the adjoining house, wherein are also located the artists' dressing and waiting rooms.

STEINWAY HALL was projected and erected by the members of the firm without the aid of a professional architect, the aim and object being the construction of an auditorium sufficiently capacious for all purposes, the acoustic properties of which should be as near perfection as attainable. The acoustical proportions were so nicely calculated that the result has been pronounced alike admirable and unsurpassed in any other hall in the United States, by the many world famed artists, lecturers, and speakers, who have been heard within its walls. It was here, as may well be remembered, that the late Charles Dickens, whose name is a household word throughout the world, read, night after night, to audiences of three thousand delighted listeners, in 1867-68, giving, in his own inimitable way, passages and extracts from his undying works, individualizing his own creations, and giving his own conception of their several characteristics; and when speaking in the lowest tones, even in a whisper, or in imitating the old, the weak, or the consumptive, his enunciation was as clearly understood and appreciated by the occupant of the most remote seat in those vast audiences, as by the nearest auditor.

With the admirable acoustic qualities of this hall, increased charm and new effect has been given to the great classical tone poems and orchestral works of the old masters, as they have been interpreted by the as yet unsurpassed orchestra of Theodore Thomas. The very name of STEINWAY HALL has, for these past ten years, been inseparably connected, in the minds of all devotees of art, science, literature, and music, with their brightest and most renowned exponents, for here they have been seen and heard, and here the most brilliant emanations of their genius have been given to the Western World.

In this hall also the best works of those great modern masters, Wagner, Liszt, Berlioz, and other celebrated composers, have been interpreted in the most perfect manner; and here, the magnificent piano recitations of that great virtuoso and composer Anton Rubinstein, were listened to, with rapt attention, by crowded and delighted audiences.

With its bold yet graceful balconies, STEINWAY HALL conveys the idea rather of an opera house than an ordinary, spacious music hall, without, however, losing that classical simplicity, which should be inseparable from the concert room.

It only remains to be added in conclusion, as previously stated, that the ground floor and basement beneath the hall proper, and the front building on Fourteenth street, are entirely devoted to business purposes, salesrooms, etc., several rooms being occupied by tuners, polishers, and regulators, the latter of whom carefully examine and test all the parts of every piano, prior to its leaving the store, preparing each instrument for the climate for which it is destined. The house No. 107 East Fourteenth street, adjoining the main marble building, contains the offices and counting-rooms of the firm, where a number of clerks, bookkeepers, and correspondents, are fully employed in the daily routine of business, attendant on the weekly average shipment of sixty instruments. Here also is located the telegraph, which connects the establishment with the manufactory on Fourth avenue, Fifty-second and Fifty-third streets, and the saw-mills and metal works at Astoria.

THE FIRM OF STEINWAY & SONS.

HENRY STEINWAY, the founder of the house of STEINWAY & SONS, was born in the Duchy of Brunswick, Germany, on the 15th of February, 1797. An inherent talent for music, combined with positive inclination, induced him in early boyhood, to make his own musical instruments, on which he played with marked predilection and taste; these were the cythera and the guitar. In a short time his efforts, in the direction he had selected, received a further impetus. He first learnt cabinet-making at Goslar, and there also worked in an organ factory. After having thoroughly studied the art of piano-making, he founded an independent business, and through a long series of years he manufactured grand, square, and upright pianos.

The consciousness of his own talent and thorough knowledge of the business he had embarked in, urged him to seek a wider field for his labor, which could not be satisfactory to him confined to a small German state, surrounded on every side by a cordon of custom-houses. It was only natural then that his attention should be directed across the ocean to that country, the free institutions of which offered unlimited scope to the labor of an active, intelligent, and perseveringly industrious manufacturer.

In 1849 the long cherished idea of emigrating to America had resolved itself into a fixed determination. In that year he sent his second son Charles to New York, to personally investigate the prospects which the new world offered to the piano trade, and the probability of success. Upon his report it was to depend whether the family should emigrate to America or not.

That report was so highly favorable, that early in 1850 Mr. Henry Steinway and his family (with one exception) set sail for America. He at once settled in New York, while his eldest son, Theodore, assumed his father's business, and continued to manufacture pianos in Brunswick, with the greatest success, until 1865.

Henry Steinway, the father, and his four sons, Charles, Henry, William, and Albert, on their arrival in the new world, most properly resolved, first of all, to study its habits and customs, and also to obtain a thorough knowledge of the American systems of piano manufacturing and doing business, and the points of difference with that of Europe. They justly realized the fact that the first requirements necessary for the carrying on of a successful manufacturing business, in a new country, were a thorough knowledge of the language, the habits, tastes, and requirements of the people. To effect this desideratum—although Mr. Henry Steinway had brought some capital with him from Germany—he, with his sons, worked in different New York piano factories, and it was only after the lapse of nearly three years, in the spring of 1853, that the father and his four sons commenced business for themselves.

That commencement was made with cautious modesty in Varick street, New York, where they rented a rear building, manufacturing about one piano a week.

The first pianos made by the firm attracted the attention of the professional musicians, and soon afterwards that of the musical public generally, and, at the expiration of a year, the firm found the building it occupied far too small for their increasing business, which had to be transferred to a larger building in Walker street, adjacent to Broadway.

The unprecedented success which accompanied the firm throughout in their manufacture of pianos, and the colossal proportions it attained, may be dated from the year 1855. In that year the firm exhibited at the New York Industrial Exhibition of the American Institute, held in the Crystal Palace, a square piano that was constructed after a new system, and which was awarded, by the *unanimous* verdict of the Jury, the first prize, viz., a gold medal.

This new invention, and the pianos built on this system, achieved so great a success that Messrs. STEINWAY & SONS received at every art exhibition, at which they took part as exhibitors, the first prize ; and the new method of construction was soon regarded, by nearly all piano-makers, as the standard one, and hence was more or less imitated by them.

The business of the firm continued to increase with such marvelous rapidity, that in 1858 the firm was compelled to purchase a large plot of ground, on which to erect a factory proportionate to the gigantic demands on their manufacturing ability. This building was erected in 1859 and occupied in 1860. In 1863 it was found necessary to add the southern wing, by which the building was extended to its present colossal proportions. In the meantime the warerooms remained in Walker street, these being brought into connection with the factory, located at a distance of three miles and a half, by a magnetic telegraph, erected expressly for the firm.

The improvements which had been made in such continuous succession, since 1855, by Messrs. STEINWAY & SONS, and for which they had obtained patents, extended also to the manufacture of grand pianos. In these latter instruments an entirely new system of construction was introduced, with such unqualified success, that they were very soon extensively used in the concert room and by musical people generally.

Theodore Steinway, in Brunswick, at the same time made pianos of the newly invented construction, on the model of those manufactured by his father and brothers in New York, and as early as the season of 1860-'61, many renowned pianists performed on these new grand pianos at their concerts in Germany.

MESSRS. STEINWAY & SONS have received for their pianos, from the year 1855 to 1862, at the leading industrial exhibitions in the United States, no less than thirty-five first prize medals ; and at the World's Fair, in London, in 1862, the pianos there exhibited by them received the highest recognition and were honored by the award of a first prize medal.

The New York warerooms of the firm had become the rendezvous of leading artists and connoisseurs, and were soon found totally insufficient in accommodation for the large dimensions the business had reached. In 1863 Messrs. STEINWAY & SONS resolved to erect new warerooms in that part of the city which promised to become the centre of New York art life ; hence, they selected a locality in East Fourteenth street, between Union Square and the Academy of Music (Italian Opera House), on which their present magnificent marble palace was erected, and in which the pianos made by the firm are now sold. A plot of ground, in the rear of this building, extending through to Fifteenth street, was also purchased by them, which was 100 feet in width by 125 feet in depth.

Whilst the rapid growth of the business of the firm continued unabated, great private misfortunes fell upon them, two members of the firm dying in quick succession. Henry, the third son, who had been in delicate health for several years, died on the 11th of March, 1865, and Charles, the second son, whilst on a European tour, died in Brunswick, on the 31st of the same month and year, of typhoid fever. In consequence of these misfortunes, Theodore, the eldest son, gave up his manufacturing business in Brunswick and became a partner in the New York firm ; thus the business was continued by Henry Steinway, the father, and his three sons, William, Theodore, and Albert, the success of their efforts being even greater than that previously achieved.

In order to satisfy a long felt and oft proclaimed want, and to meet the demands of the art interests of the American metropolis, the firm erected, in the rear of their marble palace on Fourteenth street (on the plot of ground previously alluded to as purchased by them), a grand concert hall, 123 feet long, 75 feet wide, and 42 feet high, with convenient seating capacity for two thousand persons.

This hall, styled "Steinway Hall," is furnished with a fine organ, and is not only one of the largest, but, according to the unanimously expressed opinions of artists, experts, and the general public, the most perfect hall, in its acoustic qualities, in the United States.

Henry Steinway, the father, who, for several years past, had retired from active business, leaving its management exclusively to his sons, though he superintended the erection of "STEINWAY HALL," died February 7, 1871, after a short illness, aged seventy-four years.

By virtue of his abilities and his inborn strength of character, he, an orphan boy, became one of the greatest manufacturers in his industry, not only of his own country, but of the world, and died universally regretted and lovingly remembered by all who had known him, as was evidenced by the many kindly obituaries which appeared at the time of his death.

Following the example of their revered father, the three surviving sons, Theodore, William and Albert, industriously toiled on in their several spheres, as is evidenced by a number of letters patent which bear their names and proclaim their industry ; and also, by the further extension of their business and the erection of their new factories at Astoria (opposite to One Hundred and Twentieth street, New York) ; all these operations have been inaugurated since the year 1872.

Within this short space of time, and in addition to these building operations, a new town has been laid out on the four hundred acres belonging to the firm, and more than one hundred dwelling-houses have been built. The principal or main street, more than a mile long, has been named Steinway avenue, and a plot of ground, sufficiently large to contain all the various factory buildings, has been reserved for future extensions in that direction.

It may not be amiss, in concluding this chapter, to mention that three intelligent young men, grandsons of the late Henry Steinway, Sr., are now preparing themselves to take an active share in the management of the manufacturing and mercantile interests of the firm.

Partly under the guidance and advice of the present representatives of the firm, their uncles, and partly under instruction from efficient foremen, they serve their apprenticeship, and practically have to learn the work in every department of the factory, and there is abundant hope that they will shortly be of material assistance in the administration and control of the affairs of the firm.

MEDALS, AWARDS, AND HONORARY DISTINCTIONS,

CONFERRED UPON

STEINWAY & SONS.

THE inception and construction of the piano of the present day requires not only a thorough study of the sciences of acoustics and physics, but also of the mechanical arts; when the really surprising achievements in this branch of art industry are considered, we may be pardoned if we claim that it has been raised above the level of purely mechanical art, and may be classed as one of the finer arts.

The many distinguished men who were appointed as jurors at the various European and International exhibitions, were selected on account of both their scientific and artistic qualifications, their characters and positions, and were consequently eminently fit to be judges of the productions of our art. As a natural sequence, the medals and prizes conferred by such thoroughly competent judges are vastly increased in importance and significance.

It is owing to this fact, in connection with the endorsement of STEINWAY'S inventions and original systems of construction, by these eminent men, in their official character as special or group jurors, at International exhibitions, that STEINWAY & SONS place such very high value upon the various awards thus made to them.

From among the many medals, more than thirty, awarded to STEINWAY & SONS, at American exhibitions, we only select and enumerate those that mark an epoch of progress, and abstain from mentioning those received at local and smaller fairs.

In March, 1855, STEINWAY & SONS exhibited publicly, for the first time, on the occasion of the Metropolitan Mechanics Institute Fair, at Washington, D. C., and were awarded



THE FIRST PRIZE MEDAL

FOR THE

BEST TWO AND THREE STRINGED

SQUARE PIANOS.



In November, 1855, they received the First Gold Medal for Square Pianos, in the Exhibition of the American Institute, held at the Crystal Palace, New York.



FIRST GOLD MEDAL,
 AMERICAN INSTITUTE FAIR,
 AT THE
 CRYSTAL PALACE, NEW YORK, 1855.



The Jurors at this Fair were :

WILLIAM MASON,	- - - - -	Pianist and Composer.
CHARLES B. SEYMOUR,	- - - - -	Art and Musical Critic, New York Times.
WILLIAM SAGE,	- - - - -	Teacher of Church Music, New York.
THEODORE HAGEN,	- - - - -	Editor Musical Review, New York.
HERMANN A. WOLLENHAUPT,	- - - - -	Pianist and Composer.

No less than thirty-five first premiums, gold and silver medals, were awarded to STEINWAY & SONS during the period from 1855 to 1862, at the principal fairs in this country, the more important of which were those of the Maryland Institute, Baltimore, and those held in Cincinnati, Chicago, St. Louis, Detroit, etc.

At the Great International Exhibition, London, 1862, STEINWAY & SONS were awarded one of the prize medals for grand and square pianos with patented overstrung scale, the strings spread in fan-like shape, and with patent agraffe arrangement. The medals there conferred were all of the same value, and in the official list they were arranged in alphabetical order; but we extract the following passage from the Official Report of William Pole, Reporter of Class XVI. :

“In making the awards for pianofortes, the jury have felt a difficulty arise from the medals being all of the same value, which compels them to award apparently the same degree of honor to any merit shown by a small maker, that they would to the most successful performance of the first manufacturers in Europe.

“The rules established by the commissioners do not warrant any special awards being given, but the jury consider they will not be exceeding their powers in placing certain makers at the head of their list, with notices more full and special than those which follow.”

The jury then designated those who deserve this distinction, from among the three hundred and two exhibitors—STEINWAY & SONS being so distinguished for the United States. The report then continues as follows :

“Messrs. STEINWAY & SONS have specially been awarded a medal for *powerful, clear and brilliant* tone of piano, with excellent workmanship shown in a grand piano and a square piano of very large dimensions.”



FIRST PRIZE MEDAL,
INTERNATIONAL WORLD'S EXHIBITION, LONDON, 1862,

Awarded to STEINWAY & SONS, in Class XVI. (Musical Instruments), by the following Jury:

WM. STERNDALE BENNETT, MUS. DOC.,	- - - LONDON,	-	Professor of Music, University of Cambridge.
J. R. BLACK, M. D.	- - - UNITED STATES,		
RIGHT HON. SIR GEO. CLERK, F. R. S., CHAIRMAN,	EDINBURGH,	-	Chairman of Royal Academy of Music.
FETIS, DEPUTY CHAIRMAN,	- - - BELGIUM,	-	} Member of the Department of Fine Arts, Royal Academy of Belgium; Director of the Royal Conservatory of Belgium.
LISSAJOUS,	- - - FRANCE,	-	
REV. SIR F. GORE OUSELEY, BART., MUS. DOC.,	OXFORD,	-	Professor of Music, University of Oxford.
ERNST PAUER,	- - - AUSTRIA,	-	Professor of Music.
WM. POLE, MUS. B., F. R. S., SECRETARY,	- - - LONDON,	-	Professor of Civil Engineering, University of London.
J. SCHIEDMAYER,	- - - GERMANY,	-	Musical instrument maker.
EARL OF WINTON, G. C. H.,	- - - LONDON,	-	
HENRY WYLDE, MUS. DOC.,	- - - LONDON,	-	Professor at the Royal Academy of Music.

At the Exposition Universelle, Paris, 1867, STEINWAY & SONS were awarded a *Gold Medal*, and were placed *first* upon the list as recipients of awards for the United States. As herebefore stated, the medals at the London Exhibition, 1862, were of equal value for all exhibitors, arranged in alphabetical order, the Jury describing in words the qualities and the distinct points for which the awards were conferred. In Paris, however, a different mode was adopted. A stated

number of gold, silver, and bronze medals and honorable mentions were to be given as prizes, which were allowed or voted for that purpose by the Imperial Commission.

According to an Imperial decree the number of Gold medals was limited to 900; and inasmuch as for certain groups more medals had been asked and allowed than for others—no two groups receiving an equal number—the Jurors were instructed to classify the names of the exhibitors according to the merit and distinction of the articles exhibited, without reference to nationality, and *not in alphabetical order*.

STEINWAY & SONS were placed *first*, and at the head of the list for the United States, by the International Jury. Had they been the last upon the list of recipients of Gold Medals, the next following exhibitor on the list, according to merit, would have received but a Silver Medal.

Extract from the Official Report, Paris, 1867.

“The Pianos of Messrs. Steinway & Sons are endowed with the splendid sonority, and that seizing largeness and volume of tone hitherto unknown, which fills the greatest space. Brilliant in the treble, singing in the middle, and formidable in the bass, this sonority acts with irresistible power on the organs of hearing. In regard to expression, delicate shading, variety of accentuation, the instruments of Messrs. Steinway have over those of their competitors an advantage which cannot be contested. The pianist feels under his hands an action pliant and easy, which permits him at will to be powerful or light, vehement and graceful. These pianos are at the same time the instrument of the virtuoso, who wishes to astonish by the eclat of his execution, and of the artist who applies his talent to the music of thought and sentiment bequeathed to us by the illustrious masters; in one word, they are at the same time the pianos for the concert room and the parlor, possessing an exceptional sonority.”

EXPOSITION UNIVERSELLE,



PARIS, 1867.

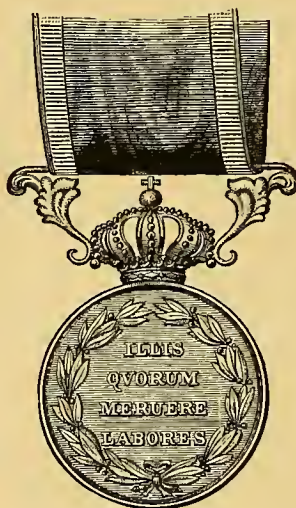
INTERNATIONAL JURY, CLASS X., MUSICAL INSTRUMENTS.

GENERAL MELINET, Senator, - - - - -	PRESIDENT, - - - - -	FRANCE.
GEORGE KASTNER, Member of the Institute, - - - - -	VICE-PRESIDENT, - - - - -	FRANCE.
AMBROISE THOMAS, Member of the Institute, - - - - -	- - - - -	FRANCE.
FETIS, Director of the Royal Conservatoire of Brussels, - - - - -	REPORTER, - - - - -	BELGIUM.
EDW. HANSLICK, Professor of the University of Vienna, - - - - -	- - - - -	AUSTRIA.
J. SCHIEDMAYER, Piano Manufacturer, Stuttgart, - - - - -	- - - - -	GERMANY.
LORD FITZGERALD, - - - - -	- - - - -	ENGLAND.
HONORABLE EGGERTON, - - - - -	- - - - -	ENGLAND.

Shortly after the Paris Universal Exposition, His Majesty, King Charles XV. of Sweden, conferred upon STEINWAY & SONS one of the most distinguished honors, viz., the award of the GREAT NATIONAL GOLD MEDAL with CROWN and RIBBON, which can only be awarded for artistic and scientific merit by consent of the Council, and which is one of the highest prizes in the gift of a European government. The occasion was the furnishing of a STEINWAY grand piano—a fac simile of those exhibited at the Paris Exposition—for the concert hall of the Royal Academy at Stockholm. The success achieved by this American production, in this branch of art industry, was without parallel in the history of the country.

At the anniversary celebration of the Royal Academy of Music, Stockholm, December 14, 1867, His Royal Highness Prince Oscar, its President, delivered the festive oration, in which he treats exhaustively on the nature of tones and their component parts, showing an intimate acquaintance with and comprehension of Helmholtz's treatise "On Tone Sensations," which he analyzes very minutely and in a scientific manner, and manifesting a thorough and earnest study of the various sciences connected therewith. He continued as follows: "It affords me great pleasure on this important occasion to announce, both to the Academy and to the numerous lovers of music here assembled, that another musical instrument is this evening to reveal its splendid tones here for the first time. Among the numerous competitors at the Universal Exposition in Paris, which has just closed, the North American pianofortes in general, and those of STEINWAY & SONS in particular, have taken an undisputed place of honor, as well as for the large volume and their charming quality of tone. The piano standing here—whose indwelling powers, like the slumbering child in Heimer's harp, in our ancient northern legends, waits only for the life-giving sign—is fellow to the best and most expensive, like those lately exhibited by STEINWAY & SONS."

NATIONAL
AWARDED
KING CHARLES XV.
TO
STEINWAY & SONS,



GOLD MEDAL,
BY HIS MAJESTY,
OF SWEDEN AND NORWAY,
NEW YORK.

In an autograph letter from His Royal Highness Prince Oscar (now the king of Sweden) dated Stockholm, January 29, 1868, addressed to STEINWAY & SONS, His Highness, after referring to the safe arrival of the concert grand, continues as follows:

"Nations and countries have their geographical limits, which certainly have their historical reasons, and may have their actual necessity. But social intercourse and friendly feelings are international; they extend far beyond these limits and will do it more and more every day with the progress of civilization. Art is essentially cosmopolitan, its realm knows no boundaries.

“Your beautiful instrument has, of course, by its noble qualities, excited general admiration at the solemn yearly meeting of December last, when it was heard for the first time, and it will, I am sure, in a very effective way, benefit the instruction on the pianoforte at our conservatory. The Royal Government has, at my request, pleased to decree you the National Gold Medal, bearing the inscription :

‘Illis quorum meruere labores,’

and the Royal Academy has, in its first general meeting this year, by unanimity, called your Mr. Theodore Steinway to take a place as a member of its honorable congregation.

“Believe me, Sirs,

“Yours, most sincerely,

“OSCAR,

“Prince of Sweden and Norway.”

The “*Société Libre des Beaux Arts*,” of Paris, in one of its sessions, had passed the resolution to appoint a Commission (independent of the International Jury), for the purpose of examining and reporting upon the most meritorious products of art and art industry, at the International Exposition of 1867.

In its public session of July 16, 1867, Messrs. STEINWAY & SONS were awarded the Honorary Prize Medal for the best pianos exhibited, and Mr. C. F. Theodore Steinway was elected foreign member of this distinguished society.



SOCIÉTÉ LIBRE DES BEAUX ARTS.

HONORARY PRIZE MEDAL

AWARDED TO

STEINWAY & SONS



For the EXCELLENCE and the SUPERIORITY of their Pianos.

In the Thirty-second Annual Report, 1867, of the Society, we find, in Bulletin No. 823, the report of Mr. le Marquis d'Aoust, President of the musical department, in which he discusses the new and original inventions represented in STEINWAY'S pianos, and from which we quote :

“These instruments possess a very singing, very pure, and very beautiful tone, and, as we believe, combined to all other desirable qualities. These works of art of the Messrs. STEINWAY, we must further add, are of the greatest interest to scientific men, and deserve the minutest examination on the part of the Central Committee of the Society of Fine Arts, inasmuch as they recommend themselves by their volume and sonority of tone, as well as by their construction and solidity. The Pianos of Messrs. STEINWAY appear to me, as well as to all the artists who have tried them, superior to all that have been made to this day in the entire World.”

Another honorary distinction was conferred upon STEINWAY & SONS on the part of the Royal Academy of Arts, Berlin, and which is awarded by this eminent corporate body solely for really remarkable and exceptional improvements. In a full session of the Royal Academy, November 29, 1867, one of STEINWAY'S concert grands, similar to those exhibited in Paris, was subjected to a minute and critical examination.

The Royal Musical Directors to the Prussian Court, Messrs. Taubert and Dorn, and Music Director Schneider, played upon the instrument before the assembled Senate and members of this distinguished corporate body, after which, Mr. Theodore Steinway delivered a discourse on the influence of the compression of the resonance matter, explaining, also, the operations of the apparatus for compression invented by himself and his co-operator, William Steinway; he further described the construction of the grand piano and the physical laws applied to it.

The following patent was transmitted, respectively, to each of the two members of the firm :

“The Royal Academy of Arts, in the session of the Senate of January 4, *a. a.*, has elected the pianoforte manufacturers—

THEODORE STEINWAY,	-	-	-	-	-	NEW YORK,
WILLIAM STEINWAY,	-	-	-	-	-	NEW YORK,

Academical members, in recognition of their meritorious productions.

“IN WITNESS WHEREOF, this present document has been executed and embossed with the seal of the Royal Academy of Arts.

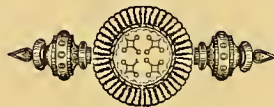


BERLIN, *February 5, 1868.*

By order of the Senate :

ED. DAEGE.

O. F. GRUPPE.”



THE AMERICAN PIANO TRADE.

The rapid growth of the manufacture of pianos in the United States is a marvel alike to those who study the industrial resources of our own country, and those European makers who once nearly monopolized the piano trade of America. Now the reverse is the case : instead of being large importers, we are large exporters of pianos, and since the Paris Universal Exposition of 1867, the fame of American pianos, especially those of STEINWAY & SONS' make, has spread throughout the length and breadth of Europe, and large numbers of STEINWAY Grand and Upright Pianos are now annually sold in London, Hamburg, St. Petersburg, Moscow, Odessa, Madrid, and other European art centres.

It will be seen by the list of piano firms given below, that they are residents of New York, Boston, and Baltimore, and that the aggregate total of their sales amounts to \$5,248,577.

Besides those given in tabular form, there are a number of small firms in the three cities named, and also several in Philadelphia, Buffalo, Albany, Indianapolis, St. Louis, and even San Francisco, which will increase the total amount of annual production and sales of pianos in the United States to fully 25,000 instruments, netting over *seven millions of dollars* (\$7,000,000).

New York, the Empire City of the Union, possesses, in the mammoth manufactory of Messrs. STEINWAY & SONS, not only the most extensive establishment in the United States, but no doubt the largest in the world, as shown by the fact of this firm returning, as made and sold during the year 1869, no less than 2,200 pianos, for the aggregate sum of \$1,205,463, while for the year 1872, Messrs. STEINWAY & SONS manufactured and sold 2,410 pianofortes, the proceeds of which reached the sum of \$1,352,000, which has been their average yearly production since that time.

Boston possesses the second largest piano manufactory in the United States, and Baltimore has the third.

The following statistics of the gross amount of sales of new pianos made and sold by the twenty-six most prominent piano-makers in the United States, for and during the year 1869—the amount being given by each manufacturer under oath, and taxes paid thereon—were officially published by the New York Tribune of March 15, 1870 :

SALES FOR THE YEAR 1869.

Names	Location.	Amounts.	Names.	Location.	Amounts.
STEINWAY & SONS,	- New York,	\$1,205,463	DECKER BROTHERS, -	- New York,	118,000
CHICKERING & SONS,	- Boston,	822,402	HAZELTON BROTHERS, -	- New York,	104,661
WILLIAM KNABE & CO.,	- Baltimore,	383,511	GROVESTEEEN, FULLER & CO.,	New York,	96,825
HAINES BROTHERS,	- New York,	287,051	STIEFF BROTHERS, -	- Baltimore,	87,470
WILLIAM P. EMERSON,	- Boston,	232,779	MARSHALL & MITTAUER, -	- New York,	80,172
ALBERT WEBER, - -	- New York,	221,444	J. & C. FISCHER, - -	- New York,	69,308
JOSEPH P. HALE, - -	- New York,	207,355	LINDEMAN & SONS, - -	- New York,	62,980
HALLET, DAVIS & CO.,	- Boston,	178,549	RAVEN, BACON & CO., -	- New York,	57,531
C. F. LIGHTE & CO., -	- New York,	155,000	CALENBERG & VAUPEL, -	- New York,	57,387
ERNEST GABLER, - -	- New York,	149,484	GAEHLE & CO., - -	- Baltimore,	44,903
H. F. MILLER, - -	- Boston,	148,359	CENTRAL PIANO COMPANY,	New York,	44,000
GEORGE STECK & CO.,	- New York,	145,500	KRANICH, BACH & CO., -	- New York,	42,622
HALLET & CUMSTON,	- Boston,	131,998			
G. W. VOSE, - - -	- Boston,	118,413			
					\$5,248,577

ALPHABETICAL LIST OF EMINENT MUSICAL ARTISTS.

WE append an alphabetical list of such artists who have used and prefer to use STEINWAY & SONS' pianofortes, and have addressed complimentary letters to our firm, which are valued by us as honorary distinctions.

We confine ourselves, for want of room, to the reproduction of one letter from the very fountain-head in the treatment of the pianoforte—in his matchless gift as composer and virtuoso—of Dr. Franz Liszt—which speaks for itself, and at the same time illustrates the spirit in which our products are valued by the artistic world.

Messrs. STEINWAY & SONS:

WEIMAR, September 3, 1873.

GENTS—The magnificent Steinway Grand Piano now stands in my music room, and presents a *harmonic totality of admirable qualities*, a detailed enumeration of which is the more superfluous, as this instrument fully justifies the world-wide reputation that for years you have everywhere enjoyed.

After so much well-deserved praise, permit me to also add my homage, and the expression of my undisguised admiration, with which I remain,

Very sincerely yours,

FRANZ LISZT.

ABT, FRANZ, Germany.
 ASANTCHEWSKY, M. VON, Russia.
 AUBER, D. F. E., France.
 BENDEL, FRANZ, Germany.
 BERGE, DR. WILLIAM, United States.
 BERGMANN, CARL, United States.
 BERGNER, FREDERICK, United States.
 BERLIOZ, HECTOR, France.
 BERNARD, M., France.
 BILLET, ALEXANDER, Switzerland.
 BIEDERMANN, JULIUS, United States.
 BOECKELMANN, BERNHARDUS, United States.
 BONAWITZ, JOHANN HEINRICH, Germany.
 BOSCOVITZ, FREDERICK, United States.
 BRAGA, GAETANO, France.
 BRANDEIS, FREDERICK, United States.
 BREUNING, F. VON, United States.
 BRONSART, INGEBORG VON, Germany.
 BUCK, DUDLEY, United States.
 BUSSMEYER, HUGO, Brazil.
 CARRENO, TERESA, United States.
 CERVANTES, IGNAZIO, Cuba.
 CLAUS-CAVARDI, MAD. W., France.
 COMETTANT, OSCAR, France.
 CUTLER, DR. HENRY L., United States.
 DAMROSCH, DR. LEOPOLD, United States.
 DANNREUTHER, EDWARD, England.
 DAVID FELICIEN, France.
 DE FONTAINE, MORTIER, France.
 DELAHAYE, AUGUSTE, France.
 DE MEYER, LEOPOLD, Austria.
 DENCK, JOSEPH HART, United States.
 DIEMER, LOUIS, France.
 DORN, HEINRICH, Germany.
 DORE, GUSTAVE, France.
 DREYSCHOCK, ALEXANDER, Russia.
 EISFELD, THEODORE, Germany.
 ELWART, A., France.
 EHRLICH, A., Germany.
 ESSIPOFF, MME., ANNETTA, Russia.
 FAIST, H., Germany.
 FISSOT, HENRY, France.
 GEVAERT, F. A., Belgium.
 GAUL, CECILIA, United States.
 GODDARD, MME. ARABELLA, England.
 GOLDBECK, ROBERT, United States.
 GOUNOD, CHARLES, France.
 GRAEVER-JOHNSON, MME., Belgium.
 GUION, EMIL, United States.

HARTMANN, F., United States.
 HELLER, ROBERT, United States.
 HELLER, STEPHEN, France.
 HELMHOLTZ, PROF. H., Germany.
 HENSELT, ADOLPHE, Russia.
 HEUGEL, HENRY, France.
 HILL, U. C., United States.
 HOFFMANN, EDWARD, United States.
 HOHNSTOCK, CARL, Germany.
 INTEN, FERDINAND VON, United States.
 JAELL, ALFRED, France.
 JAMESON, J. S., United States.
 JOACHIM, JOSEPH, Germany.
 KALIWODA, W., Germany.
 KETTERER, EUGENE, France.
 KLAUSER, KARL, United States.
 KREBS, MME. MARIE, Germany.
 KREISSMANN, AUGUST, United States.
 KRUEGER, WILHELM, Germany.
 KULLACK, DR. THEODORE, Germany.
 LACK, France.
 LACOMBE, LOUIS, France.
 LASARE, MARTIN, Belgium.
 LAVIGNAC, France.
 LEBERT, PROFESSOR, Germany.
 LEFEBURE-WELY, H., France.
 LESCHETITZKY, PROFESSOR, Russia.
 LIEBLING, MAX, United States.
 LIEBLING, S., United States.
 LUCKHARDT, MISS LINA, United States.
 MAGNUS D., France.
 MAILLET, E., France.
 MANN, JEAN, United States.
 MARMONTEL, A., France.
 MARTIN, MME. JOSEPHINE, France.
 MASON, DR. WILLIAM, United States.
 MEHLIG, MISS ANNA, Germany.
 MILLS, S. B., United States.
 MILLS, WM. F., United States.
 MORGAN, GEO. W., United States.
 MOSCHELES, J., Germany.
 MOSENTHAL, JOSEPH, United States.
 MUZIO, E., United States.
 NAPOLEON, ARTHUR, Portugal.
 PAPE, WILLIE B., England.
 PAREPA-KOSA, MME. E., England.
 PATTISON, JOHN N., United States.

PAUR, AGRICOL, United States.
 PECHER, WILLIAM, United States.
 PEARSON, PROFESSOR, United States.
 PEASE, ALFRED H., United States.
 PINNER, MAX, Germany.
 PLAIDY, LOUIS, Germany.
 PRUCKNER, DIONYS, Germany.
 RAVINA, HENRY, France.
 REINECKE, CARL, Germany.
 REMMERTZ, MARTHA, Germany.
 RICHTER, CARL, Germany.
 RITTER, FREDERIC LOUIS, United States.
 RITTER, THEODORE, France.
 RUBINSTEIN, ANTOINE, Russia.
 RUBINSTEIN, NICHOLAS, Russia.
 SAAR, WILLIAM, United States.
 SAINT-SAENS, CAMILLE, France.
 SCHARFENBERG, WILLIAM, United States.
 SCHILLER, MME. MADELINE, United States.
 STERLING, MME. ANTOINETTE, United States.
 STIGELLI, GIORGIO, Germany.
 STOEGER, ERNEST, France.
 TAUBERT, WILHELM, Germany.
 TELEFFSEN, —, Sweden.
 THOMAS, ANBROISE, France.
 THOMAS, THEODORE, United States.
 TIMM, HENRY C., United States.
 TITIENS, MME., TERESA, England.
 TOPP, MISS ALIDA, Germany.
 TRAUTMANN-JAELL, MME. MARIE, France.
 VAN BOOM, I, Sweden.
 VIEUXTEMPS, HENRY, Belgium.
 VOGT, JEAN, Germany.
 WAGNER, RICHARD, Germany.
 WALLACE, WM. VINCENT, United States.
 WARREN, SAMUEL P., United States.
 WEIKERT, CONSTANTIN, United States.
 WELS, CHAS., United States.
 WENIGE, OSCAR, United States.
 WHITE, SENNOR JOSEPH, Cuba.
 WICHMANN, MISS, Sweden.
 WIENIAWSKY, HENRY, Belgium.
 WIENIAWSKY, JOSEPH, Russia.
 WILLMERS, RUDOLPH, Austria.
 WOLFSOHN, CARL, United States.
 WOLLENHAUPT, BRUNO, United States.
 WOLLENHAUPT, HERMANN A., United States.
 ZUNDEL, JOHN, United States.

Grand Honorary Gold Medal
 of the
Steinway & Sons
 of New York
 ROYAL CARLENSKY SWEDEN
 ACADEMICAL HONORS
 bestowed by the Senate of the
 Royal Academy of Fine Arts
 STOCKHOLM SWEDEN
 1868.



ACADEMICAL HONORS
 Valuable Inventions
 of
PIANOFORTES
 AWARDED TO
Steinway & Sons
 by the Senate of the
 Prussian Royal Academy
 of Fine Arts
BERLIN
 1868

SAW MILL, IRON & BRASS FOUNDRY & METALWORKS AT ASTORIA, L. I.



STEINWAY & SONS.
 MANUFACTURERS
 OF
 GRAND SQUARE & UPRIGHT
 PIANOS.
 Patented Inventions and Improvements.



STEINWAY HALL 14th ST. N.Y.

STEINWAY HALL 15th ST. N.Y.



1. Patent Agraffe Arrangement Nov. 30, 1859.
2. Patent Overstrung Grand Piano Scale and Frame Dec. 30, 1859.
3. Patent Resonator June 5, 1860.
4. Patent Tubular Metallic Action Frame Aug. 18, 1868.
5. Patent Vibrating Sound-board Bridge April 6, 1869.
6. Patent Independent Detached Pilot and Metal Standards Aug. 10, 1869.
7. Patent Ring-bridge on Sound-board Dec. 14, 1869.
8. Patent Repetition Action June 6, 1871.
9. Patent New Iron Cupola and Pier Frame May 28, 1872.
10. Patent Grand Duplex Scale May 14, 1872.
11. Patent Tone-sustaining Pedal Oct. 27, 1874.
12. Patent Regulating Action Pilot Oct. 20, 1875.
13. Patent Capo d'Astro Agraffe Oct. 20, 1875.
14. Patent Metal Frame Construction in Grand Pianos Oct. 20, 1875.
15. Design of Metal Frame, with Ornaments, for Grand Pianos Nov. 8, 1875.



STEINWAY & SONS PIANOFORTE MANUFACTORY 4th AVE. & 52nd-53rd STR. NEW YORK.

